

**NATURAL RESOURCE DAMAGES,
MITIGATION BANKING, AND
THE WATERSHED APPROACH**

March 2018



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This report was prepared by the Environmental Law Institute (ELI) with funding support from the U.S. Environmental Protection Agency (EPA), Office of Wetlands, Oceans, and Watersheds (OWOW) Wetlands Division, under Wetlands Program Development Grant WD-83695901. ELI is solely responsible for its contents, and no official endorsement by EPA should be inferred. ELI staff contributing to this report include James McElfish, Cynthia Harris, Azi Akpan, and Thien Chau (legal intern), with additional review by Rebecca Kihslinger. ELI appreciates the assistance of an advisory panel and additional experts, as noted in an Appendix to the report.

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ELI Project No. 1633-01.

Executive Summary

This report examines the potential opportunities for state and tribal natural resource trustees to integrate restoration and compensation for Natural Resource Damages (NRD) with other ecological restoration programs using the “watershed approach” and coordinating with mitigation banks and in-lieu fee (ILF) programs developed under the Clean Water Act §404 compensatory mitigation program for aquatic resources.

Project goals are to assist states and tribes to improve their coordination of wetland and riparian restoration, and achieve watershed approach goals, by developing an approach to programs that provide NRD compensation from oil spills and releases of hazardous substances—integrating NRD with compensatory mitigation programs that benefit aquatic resources and habitats.

The Oil Pollution Act (OPA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provide for the recovery of funds from responsible parties to restore natural resources damaged by the release of petroleum or hazardous substances, and to compensate for the injury to the resources. Natural resources include “land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources.” A natural resource is defined as “belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by” the United States, any State, an Indian Tribe, a local government, or a foreign government. Responsibility for protecting these resources and directing their restoration lies with natural resource “trustees,” which usually include the Department of Interior (DOI), National Oceanic and Atmospheric Administration (NOAA), state natural resource agencies, and affected Indian tribes (depending on the location and type of resource damaged by the release). States and tribes have their own laws that may create a basis for recovery of such damages for spills and releases.

Trustees are responsible for assessment of the injury to natural resources, and for planning and implementing restoration of the resources injured and services lost due to the release. A Natural Resource Damage Assessment (NRDA) is carried out under regulations adopted by DOI or NOAA. Assessments done in accordance with the regulations are accorded a “rebuttable presumption” in a court action for recovery of damages from a PRP. Restoration actions are designed to return the damaged resources to “baseline” conditions and to compensate the public for interim losses to the damaged resources between the time of injury and full restoration.

Under other laws, there are programs designed to offset *permitted* impacts to waters of the United States. The Compensatory Mitigation Rule issued by the Army Corps of Engineers and Environmental Protection Agency (EPA) in 2008, sets the parameters for such offsets under the Section 404 of the Clean Water Act, including mechanisms such as mitigation banks and ILF programs that generate compensation credits to replace unavoidable losses to ecological services that have been authorized by permit. The rule directs the use of a “watershed approach” in compensatory mitigation. State, federal, and tribal agencies participate on Interagency Review Teams (IRTs) in consultation with the Corps in reviewing the establishment and management of these entities. Similar mechanisms, in the form of

conservation banks have been recognized by states and the U.S. Fish and Wildlife Service (FWS) to address authorized impacts to threatened or endangered species and their habitats.

Integrating 404 banking and ILF programs and the watershed approach, and conservation banking, with the NRDA process offers three potential advantages: (1) Doing so may reduce the time period until active restoration occurs. (2) Integration provides for potential efficiencies in evaluating ecosystem services, identifying restoration options, and implementing needed actions. (3) Coordination may produce a more regionally-oriented outcome by identifying sites that can serve multiple ecosystem goals in a regional context.

Section 404 banking, ILF, and conservation banking approaches may work well in environments that experience frequent, recurrent spills; and especially well for addressing small spills where full-scale assessment is not always justified, and where individualized restoration projects cannot be funded effectively based on likely recoveries.

In regional areas where there are likely to be multiple NRD claims, restoration banks should be recognized and pre-designated (by trustee federal agencies, states, tribes) as a potential means of meeting liabilities. This will make it easier to integrate such activities as part of restoration plans.

It also will make it possible for compensatory mitigation developers (and their investors) to include planning for generation of NRDA credits as part of their investments in banks that may be developed chiefly for other purposes, such as 404 or conservation banking.

State legislation/regulations can be very helpful in defining expectations and obligations. The Louisiana regulations build substantially on existing experiences with NRDA restoration elsewhere, and build on experiences with the 404 Compensatory Mitigation Rule to guarantee review of siting and operations, oversight, and fulfillment of obligations. The state rules also proved a suitable and defined link to *larger regional restoration plan goals and projects*, making the resulting mechanisms more likely to produce valuable landscape-scale ecological results.

Most NRDA cases, and especially larger cases, will continue to require individualized assessments and detailed determination of restoration plans tailored to the array of resources that have been injured.

It should not be expected that 404 mitigation banking, ILF, or conservation banking mechanisms will be used in most NRDA settings. In many NRDA settings, these compensatory mitigation mechanisms may be less appealing to trustees in comparison with tailor-made primary and compensatory restoration based on detailed, long-term individualized assessments funded by PRPs. For many large and complex areas, it is very likely that trustees will want to engage in individualized assessment to determine the baseline and evaluate restoration alternatives. Because of this complexity, there may be no hurry to place compensatory restoration in place until after full determination of NRD liability and specifically after primary restoration has been determined and may even be underway.

CWA 404 mitigation banks and conservation banks rely to a significant degree on their ability to project demand for credits. Thus, where demand for credits may be at a much later time and may even not be

required (because of primary restoration activities, PRP-initiated activities on their own lands, and other projects), the prospect of marketing restoration credits to meet NRD liability may not be an attractive investment opportunity for private capital.

However, in a few places where there is a multi-year NRDA process there may be a place for use of these mechanisms. For example, it is more likely at sites that contemplate opportunities for advance restoration—in the NRDA sense of some restoration activities occurring before full determination of the assessment amount in recognition of a large set of liabilities, and the existence of PRPs willing to enter into early agreements without resolving the entire liability issue.

States and tribes can encourage the use of existing regional plans and compensatory mitigation mechanisms by bringing these forward early in the process.

Both the DOI and NOAA NRDA regulations provide for the integration of existing regional plans and regional restoration projects into the NRDA alternatives analysis. This underlying authority can be cited as a basis for federal trustees to consider ESA and 404 compensatory mitigation activities, as well as state and tribal plans, in the development of the trustees' actions for each site.

Particularly in regions where the watershed approach has been used by the Corps in consultation with an IRT to approve the siting of 404 *mitigation banks* and define their service areas, and by the Corps and IRT to approve the compensation planning framework for *ILF programs*, the regional utility of the watershed approach for NRDA can be high. Among other advantages, the involvement of multiple resource agencies through the IRT approval of the bank or ILF produces greater potential utility for its use in a NRDA process as a regional restoration plan.

Credit definition is extremely important to ensure that NRDA requirements are satisfied.

A mechanism for credit definition and calculation should be put into place—addressing types of credits, ecological performance, monitoring, and accountability. Methodologies can be established ahead of spills and releases by state law or policy, by development of conditions for future trustee MOAs (and reference to prior successful trustee models), or other means. Agreements among the NRDA trustees can be very important to identify the possibility of credit utilization from projected (or existing) banks, to facilitate the development of restoration banks, and to determine likely credit definitions. This is necessary in order to ensure that there is a reasonable basis for private or nonprofit investment in these restoration activities in advance of any assured return. State-led approaches (such as in Louisiana) can also define these expectations for state NRD activities.

NOAA's 2016 policy against recognizing and accepting credits that are not generated under trustee supervision provides no evident advantages. It should be possible to recognize credits generated before the signing of an MOA between trustees and a provider if they meet the ecological restoration/service standards set by the trustees, where these credits were created in anticipation of meeting liabilities for compensatory mitigation under CWA or ESA, or NRD claims, and where some governmental entity has previously approved the instrument under which the prior work was done.

Public comment on use of credits for NRDA remains important, and can be integrated with existing processes.

Approaches for designation of restoration banks and the use of credits generated by other existing entities (404 mitigation banks, ILFs, conservation banks) should be subject to public comment, and integrated with NEPA and NRDA procedures to the greatest extent possible. Such uses can be addressed, among other ways, by programmatic environmental assessments in areas where future uses are anticipated (and then subsequent NRDA processes tied to the prior efforts).

Provisions for restoration banks used in NRDA restoration should include all necessary assurances for siting, monitoring, maintenance, long term management, and financial assurances.

These can be based on the successful models under the Compensatory Mitigation Rule, and the Conservation Banking Interim Guidance, each of which meets NRDA needs.

Tribal trustees may need to examine opportunities to generate restoration credits on their own lands or treaty rights lands via participation in restoration banking.

Given constraints on uses of tribal lands and access issues for treaty lands, tribes' ability to participate in producing these credits for sale (or providing land and water areas for such purposes) may be limited. Particularly in focus areas subject to future oil spills and future NRD claims, it would be useful for tribes to obtain legal and technical assistance in connection with identifying these opportunities and constraints, which vary substantially.

Wetland programs provide opportunities to plan for integration with the NRDA process.

State and tribal wetlands programs can inform the development of valuation approaches and credit definitions for use in NRDA restoration activities including restoration banking. In many instances, the NRDA trustees are in the same agency (or are the same agency) that is responsible for aquatic resource protection, regulation, and/or conservation.

EPA should consider integrating NRDA issues in its support for wetlands restoration activities. In its support for "core" elements of wetlands program management plans, along with voluntary restoration and other restoration activities, it could provide guidance to encourage the identification of ways to integrate NRD restoration with a landscape-level approach to aquatic resource conservation.

NATURAL RESOURCE DAMAGES, MITIGATION BANKING, AND THE WATERSHED APPROACH

Goals of This Project

This report is intended to assist state and tribal natural resource trustees to integrate restoration and compensation actions for Natural Resource Damages (NRD) with other ecological restoration programs – specifically, programs that use a “watershed approach” to compensate for authorized impacts to state and tribal waters and waters of the United States under the federal Clean Water Act (CWA)¹ and state laws.

Spills of petroleum and releases of hazardous substances give rise to liability not only for cleanups, but also to liability for damages to natural resources, including wetlands and waterways. Under the Oil Pollution Act (OPA)² and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),³ as well as under state laws, states and tribes can act as natural resource trustees for recovery of damages and restoration of these resources.

States and tribes can coordinate their NRD programs with the separate wetland, stream, and other aquatic resource compensatory mitigation activities managed by state and tribal aquatic resource programs and the compensatory mitigation activities approved by the Army Corps of Engineers for permitted impacts to waters of the United States. The latter activities are conducted using a “watershed approach” to define compensatory mitigation sites and mitigation types, and to inform the identification of service areas.

State and tribal NRD trustees may be able to leverage existing watershed plans, mitigation banks, and in-lieu-fee (ILF) programs associated with these Corps of Engineers and state and tribal aquatic resource programs (regulatory and non-regulatory) to produce efficiencies and landscape-scale improvements in the resolution of natural resource damage claims. Such approaches may also provide more diverse options for restoration, possibly facilitating settlements with Potentially Responsible Parties (PRPs).

Using the information in this report, state and tribal trustees can coordinate NRD assessments and related restoration activities with wetland and riparian restoration, connecting these separate programs in appropriate settings such as areas with recurrent spills and areas with multiple existing and approved providers of ecological restoration services.

¹ 33 U.S.C. §§ 1251-1387.

² 33 U.S.C. §§ 2701-2761.

³ 42 U.S.C. §§ 9601-9675.

BACKGROUND: LEGAL AND POLICY FRAMEWORK

Natural Resource Damages

Both the OPA and CERCLA provide for the recovery of funds to restore natural resources damaged by the release of petroleum or hazardous substances, and to compensate for the injury to the resources. Natural resources include “land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources.” A natural resource is defined as “belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by” the United States, any State, an Indian Tribe, a local government, or a foreign government.⁴ Responsibility for protecting these resources and directing their restoration lies with natural resource “trustees,” which usually include the Department of Interior (DOI), National Oceanic and Atmospheric Administration (NOAA), state natural resource agencies, and affected Indian tribes (depending on the location and type of resource damaged by the release).⁵

Trustees are responsible for assessment of the injury to natural resources, and for planning and implementing restoration of the resources injured and services lost due to the release. A Natural Resource Damage Assessment (NRDA) is carried out under regulations adopted by DOI or NOAA.⁶ Assessments done in accordance with the regulations are accorded a “rebuttable presumption” in a court action for recovery of damages from a PRP.⁷ Restoration actions are designed to return the damaged resources to “baseline” conditions and to compensate the public for interim losses to the damaged resources between the time of injury and full restoration. The laws also authorize trustees to recover expenses incurred by the trustees during the NRDA process.

Statutory provision and regulations	Injury/agent	Statute of Limitations	Measure of damages
CERCLA 42 U.S.C. § 9607(f) 43 C.F.R. Part 11	Hazardous substances	Within 3 years of completion of remedial action at sites on NPL, or 3 years from date of discovery of loss. Later for tribal trustees.	To restore, replace, or acquire the equivalent Compensable value [interim losses] Reasonable assessment costs
OPA 33 U.S.C. § 2706. 15 C.F.R. Part 990	Oil	3 years after date of loss and connection with the discharge, or date of completion of the NRDA assessment.	Restoring, rehabilitating, replacing, or acquiring the equivalent of, the damaged natural resources Diminution of value of those natural resources pending restoration [interim losses] Reasonable assessment costs
CWA 33 U.S.C. § 1321 CERCLA (hazardous waste, 43 C.F.R. Part 11) and OPA (oil, 15 C.F.R. Part 990)	Oil and hazardous substance in such quantities as may be harmful		<i>CWA expressly authorizes only federal and state trustees to pursue NRD claims</i>

⁴ 33 U.S.C. § 2701(20); 42 U.S.C. § 9601(16).

⁵ Tribes’ status as trustees may be based on injuries to natural resources on reservation and trust lands, as well as injuries to resources on lands and waters where tribes have reserved treaty rights (hunting, fishing, gathering).

⁶ 43 C.F.R. Part 11, 15 C.F.R. Part 990, respectively. The DOI regulations apply to CERCLA and the NOAA regulations to both CERCLA and OPA.

⁷ 42 U.S.C. § 9607(f)(2)(C), 33 U.S.C. § 2706(e)(2).

NRDA regulations specify processes for quantifying and recovering funds for:

- (1) **Restoration:** Direct impacts to injured natural resources.
- (2) **Interim losses:** The reduction in services those resources provide to humans or other natural resources—specifically, recovery of ecological services’ economic value under CERCLA and compensatory restoration under OPA.
- (3) **Reasonable assessment costs:** Recovery of costs incurred by trustees for assessment.

NRDA’s scope encompasses injuries that remain after the Environmental Protection Agency (EPA) and/or a responsible party (RP) conducts the required removal and remedial actions, as well as interim loss of services from those resources.

There are four phases of NRDA under CERCLA, OPA, and CWA: (1) **Pre-assessment**, or the initial screen to determine whether trustees should proceed with conducting an assessment; (2) **injury determination and quantification**; (3) **damage assessment**, which determines the costs of restoration, replacement, or acquisition of in-kind resources to restore natural resources to the baseline condition, plus compensation for interim losses (which may be based on lost value of the services, or the cost of projects that will compensate for interim losses); and finally (4) **restoration implementation**.

A lead agency is designated, and coordinates these processes with other affected agencies; these are encouraged to work with the responsible party or parties. Both the RPs and the public are entitled to notice and comment at various junctions.



The trustees identify restoration alternatives that can restore or replace the injured resources and services and calculate the costs for achieving these results. Under the OPA regulations, scaling of compensatory restoration is required for interim losses. Trustees determine the appropriate spatial and temporal extent of restoration actions, and generally may use one of three methods, ranked as follows: (1) resource-to-resource/service-to-service (which is typically used for ecological and resources losses); or (2) one of two valuation approaches -value-to-value; or value-to-cost (most often used for recreational losses).

In developing the restoration plan, trustees must evaluate various alternatives, including consideration of “natural recovery” (e.g., no active restoration measures taken).

More than half of the states have enacted statutes that authorize response actions and natural resource damage recovery claims; these include claims under state laws for spills and releases, as well as authority to participate in federal NRDA claims.

Nearly all states have designated a specific agency or office to act as a trustee. State trustees can bring claims for injuries under CERCLA, OPA, and CWA, and can take advantage of the rebuttable presumption by following the federal regulations. Tribal trustees too have participated in numerous federal NRDA processes.

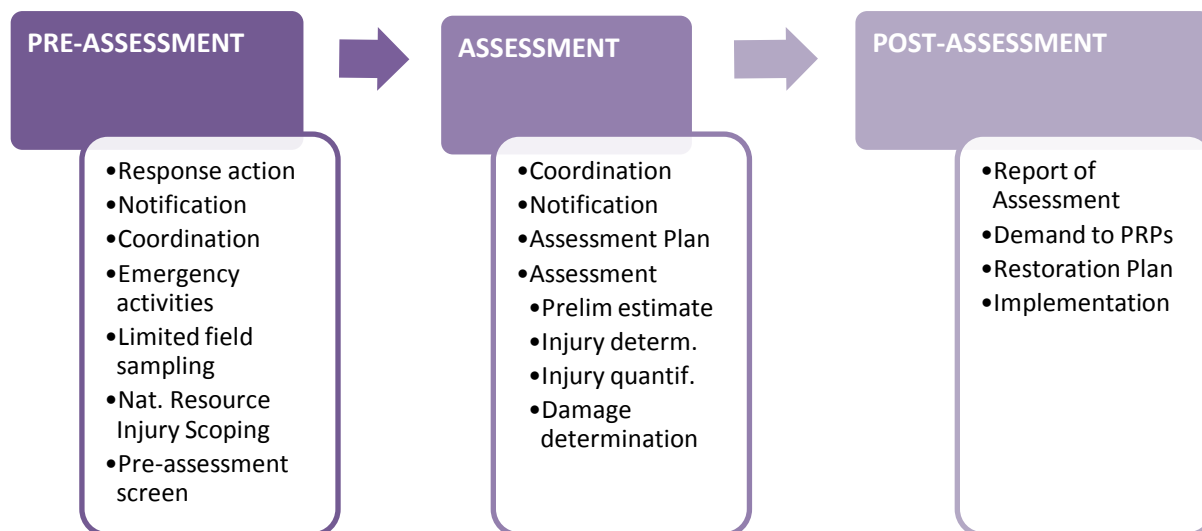
Rebuttable Presumption Conferred by Statute and Regulations	
CERCLA	<ul style="list-style-type: none"> • § 9607(f)(2)(C). Any determination or assessment of damages to natural resources in accordance with the regulations shall have the force and effect of a rebuttable presumption on behalf of the trustee in any administrative or judicial proceeding. • 43 C.F.R. § 11.10: Assessment procedures are not mandatory, but must be used by trustees in order to obtain the rebuttable presumption. • Trustees are not required to follow the regulations; they are optional, but if they do, they obtain the benefit of a rebuttable presumption in any administrative or judicial proceeding under CERCLA or CWA 311.
OPA	<ul style="list-style-type: none"> • Trustees are not required to follow OPA NRDA regulations, but if they do, they receive the benefit of a “rebuttable presumption” for any determination or assessment of damages in accordance with the regulations. Section 2706(e)(2).
CWA	<ul style="list-style-type: none"> • Trustees are not required to follow the regulations; they are optional, but if they do, they obtain the benefit of a rebuttable presumption in any administrative or judicial proceeding under CERCLA or CWA 311.

The next sections identify the specific approaches used in the DOI regulations and NOAA regulations in order to provide a basis for understanding where there may be opportunities or limitations that affect the trustees’ ability to use 404 compensatory mitigation concepts (described in the succeeding chapter) in NRDA processes.

DOI NRDA Regulations

The Department of Interior's NRDA regulations⁸ and procedures⁹ provide specific processes for carrying out NRDA. DOI has also published an online primer describing the process for trustees and others.¹⁰

The **Pre-Assessment Phase** begins after the incident and includes a series of coordination actions. It occurs during the emergency response portion of an incident and includes the following steps: Formal notification of trustees by the On-Scene Coordinator or Remedial Project Manager, preliminary data collection and sampling primarily to preserve ephemeral information, and determination of the likelihood of a successful claim. In pre-assessment, the trustees conduct a pre-assessment screen to determine the suitability of performing a NRDA.



The pre-assessment screen includes the following activities: Confirm jurisdiction and appropriateness of proceeding; collect and review readily-available data (e.g., incident, substances involved, historic site uses, PRPs); identify possible pathways for exposure of natural resources; determine likelihood of injury; ensure reasonable probability of making a successful claim.¹¹

⁸ 43 C.F.R. Part 11 (revised in 2008).

⁹ Procedures include the BLM Natural Resource Damage Assessment and Restoration Handbook (2008) (hereafter BLM HB), and the U.S. Dept. of the Interior, Policies and Operating Principles for Natural Resource Restoration Activities (May 7, 2004) (hereafter DOI POP).

¹⁰ DOI NRDAR Program, *Natural Resource Damage Assessment and Restoration Primer for Federal, State and Tribal trustees, Federal On-Scene Coordinators, and Others Involved In Preparedness and Emergency Response Activities under the National Oil and Hazardous Substances Pollution Contingency Plan, CERCLA, OPA and Other Authorities*, available at <https://www.doi.gov/restoration/primer> (DOI NRDAR Primer).

¹¹ 43 C.F.R. § 11.23.

The **Assessment Phase** includes coordination and designating the lead agency, notifying PRPs and co-trustees, and developing the *Assessment Plan*.¹²

The trustees determine the type of assessment they will conduct. Under DOI rules, Type A is a simplified assessment, requiring minimal field observation. It applies only to releases in the Great Lakes and coastal and marine environments involving damages of \$100,000 or less.¹³ Type B is the assessment approach in general current usage. It requires extensive sampling and field observation. The plan must be made available to PRPs, other trustees, affected agencies, and the public for 30 or more days prior to proceeding with a Type B assessment.¹⁴

The assessment moves through a series of specific stages prescribed in the regulations.

Preliminary Estimate. The trustees develop a preliminary estimate of damages (PED). This includes a preliminary estimate of costs of restoration, rehabilitation, replacement, and/or acquisition of equivalent resources, with consideration of a range of possible alternative actions that would accomplish the restoration, rehabilitation, replacement, and/or acquisition of the equivalent of the injured natural resources.¹⁵ It also includes preliminary estimate of compensable value (interim losses) which should be consistent with the range of possible alternatives for restoration, rehabilitation, replacement, and/or acquisition of equivalent resources under consideration. These are revised in subsequent stages.¹⁶

Injury Determination. The trustees must determine that injury to natural resources has occurred as a result of a release. Injury means any “measurable adverse change.” An injured resource may be surface water, ground water, air, geological, or biological resource. Trustees link the injury to the release/spill via a pathway analysis, and select testing and sampling methods from the available procedures that meet the requirements (“acceptance criteria”) for the specific resource type.¹⁷

Injury Quantification. The trustees then quantify the extent of the injury in terms of loss of services, including ecological services, performed by the injured resources.¹⁸ This requires reviewing the nature, scope, and severity of the injury. The approach identifies interdependent services to avoid double-counting. The baseline should reflect conditions that would have been expected at the assessment area had the discharge not occurred, taking into account both natural processes and those that are the result of human activities. The trustees measure the

¹² 43 C.F.R. §11.32.

¹³ If damages are in excess of \$100,000, trustees can limit the portion of the claim to \$100,000 in order to use Type A. Respondents advise that Type A modeling is no longer used for small oil spills.

¹⁴ Plan modifications must also be made available for review for 30 or more calendar days, but trustees may proceed with implementation if the modification is not significant.

¹⁵ The preliminary estimate includes consideration of the ability of the resources to recover naturally. 43 C.F.R. §11.38 (c).

¹⁶ 43 C.F.R. §11.38.

¹⁷ 43 C.F.R. §11.61.

¹⁸ 43 C.F.R. §11.70.

difference in post-incident services to quantify injury/degree of service reduction. They conduct a resource recoverability analysis to determine the time needed to recover with and without restoration action, and to determine whether restoration is technically feasible. Trustees may rely on studies, field/lab studies, and experience of managers.¹⁹

Damage Determination. The trustees prepare a **Restoration and Compensation Determination Plan (RCDP)**; consider alternatives for restoration, rehabilitation, replacement, and/or acquisition of equivalent resources; and consider approved cost estimating and valuation methodologies. The trustees translate the injury into a damage determination expressed in dollars. The two main components of damages are the restoration of injured resources (including replacement where necessary), and compensation for interim losses of services.²⁰

Restoration involves a determination of the costs to restore, rehabilitate, replace, or acquire the equivalent of the injured natural resources and the services they provide. The trustees develop a RCDP and provide opportunity for public notice and comment.²¹ The trustees must develop and evaluate a reasonable range of restoration alternatives, which could range from intensive action to restore to baseline as quickly as possible, to natural recovery with minimal management actions. Factors to consider in selecting the alternative to pursue include technical feasibility, cost-benefit, and cost-effectiveness.²² There is no regulatory preference for one category of restoration strategy over another, such as in-situ rehabilitation activities over replacement or acquisition of equivalent resources. However, federal trustees cannot select an alternative that requires acquisition of land for federal management unless they make a determination that restoration/ rehabilitation/ replacement is not possible. The trustees estimate project costs in developing the RCDP to monetize restoration costs.²³

Compensable value determines the value of services lost over the time it takes to restore resources and services to baseline. (This is “Interim lost use” under OPA.) Under the DOI CERCLA regulations, the compensable value can include the “economic value of lost services provided by the injured resources, including both public use and nonuse values such as existence and bequest values.” Alternatively, compensable value can be determined utilizing a “restoration cost approach, which measures the cost of implementing a project or projects that restore, replace, or acquire the equivalent of natural resource services lost pending restoration to baseline.”²⁴

¹⁹ 43 C.F.R. §11.73.

²⁰ 43 C.F.R. §11.80.

²¹ 43 C.F.R. §11.81.

²² 43 C.F.R. §11.82. The RCDP must include the ‘no action-natural recovery’ alternative.

²³ 43 C.F.R. §11.83.

²⁴ 43 C.F.R. §11.83(c). Habitat Equivalency Analysis (HEA) is used in cases of habitat injury when the service of the injured area is ecologically equivalent to the service that will be provided by the replacement habitat. BLM HB p.55

In some cases, the injured resource or lost service may not be restorable, but similar resources or services elsewhere that meet overall restoration goals and are acceptable to the public could be restored or enhanced. The BLM Handbook notes that there may be existing resource management plans (RMPs) regarding the same resources locally or regionally that identify desired actions to improve the condition of those resources. An RMP, for example, may identify areas that the BLM regards as having high resource value or where the BLM would like to acquire important habitat or further develop a recreation opportunity. A project or action identified in a RMP *that is not already funded* and that addresses resources or services injured by the release could be considered as a NRDA restoration alternative.²⁵

The **Report of Assessment** includes the preliminary assessment of damages, the Assessment Plan, all documentation supporting the Injury Determination, Quantification, and the Damage Determination, the RCDP, and all comments and responses to comments.²⁶ It becomes a basis for the claim to RPs. The RCDP should clearly identify and explain the relationship between each restoration alternative considered and the resource injuries or service losses the action would address. The plan should include provisions that establish performance standards (materials and methods), performance criteria (measures of success) and describe its legal protections (e.g., easements, deed restrictions) established for the completed restoration projects.²⁷

The **Restoration Plan** is based on the RCDP and explains how the restoration activities will be carried out with the funds recovered.²⁸ DOI policies note that in an area where there have been multiple settlements with RPs for similar types of injury, or where such settlements are anticipated, a regional restoration plan may be developed and used as the basis of combining claims to maximize restoration success. An existing plan (e.g., regional, endangered species recovery, Coastal Zone Management Plan, Tribal Resource Management Plan) or portions of such a plan may be incorporated into a restoration plan.²⁹

²⁵ BLM HB, pp. 59-60.

²⁶ 43 C.F.R. § 11.90.

²⁷ DOI POP, p.3.

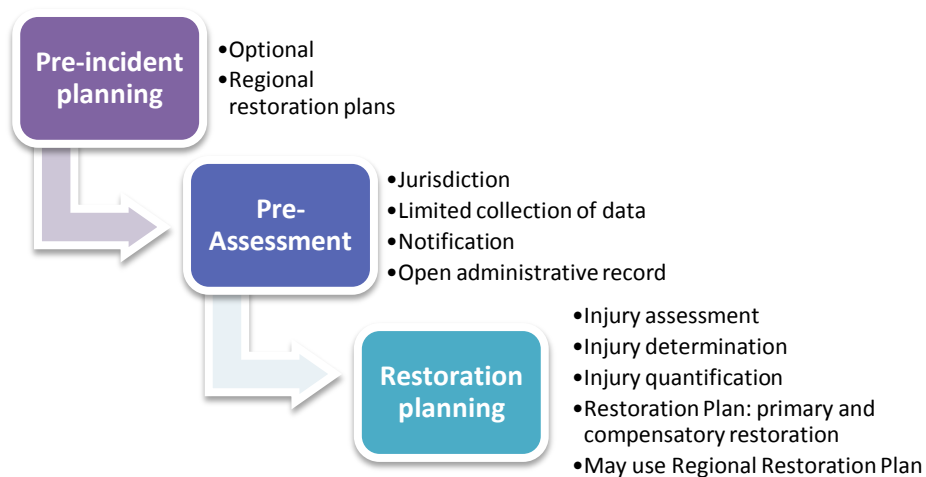
²⁸ 43 C.F.R. § 11.93.

²⁹ DOI POP, p.3.

NOAA NRDA Regulations

NOAA's regulations³⁰ and procedures³¹ set a similar approach to determining NRDs. Under these regulations, trustees proceed through a phased process:

- Pre-Incident Planning,
- Pre-Assessment, and
- Restoration Planning.



Trustees may engage in pre-incident planning, including identifying natural resources and services potentially at risk and compiling available baseline information.³² Where practicable, incident-specific plan development is preferred; however, trustees may use Regional Restoration Plans, which may be used to support a claim. This may consist of databases that identify, on a regional or watershed basis, or otherwise as appropriate, existing, planned, or proposed restoration alternatives for consideration in the context of specific incidents. Plans or projects developed on a regional basis (e.g., ecosystem, landscape, watershed, or any other basis) are appropriate so long as natural resources and/or services comparable to those expected to be injured by an incident are addressed in the plans.³³ These are recognized for impacts of small incidents, particularly when multiple spills may have cumulative impacts.

In the **Pre-Assessment** phase, the trustees make the threshold decision whether to pursue restoration. Emergency restoration is permitted prior to undertaking NRDA processes if action is needed, feasible, likely to minimize or prevent additional injury, and costs are reasonable. During pre-assessment,

³⁰ 15 C.F.R. pt. 990.

³¹ Policy/Guidelines:

- *Injury Assessment: Guidance Document for Natural Resource Damage Assessment Under the Oil Pollution Act of 1990*. Damage Assessment and Restoration Program, NOAA (1996). [NOAA G-IA]
- *NOAA. Primary Restoration: Guidance Document for Natural Resource Damage Assessment Under the Oil Pollution Act of 1990* (1996).[NOAA G-PR]
- *NOAA. Restoration Planning: Guidance Document for Natural Resource Damage Assessment Under the Oil Pollution Act of 1990* (1996).[NOAA G-RP]

³² 15 C.F.R. §990.15.

³³ NOAA G-RP.

trustees will determine jurisdiction and probable liability. In determining whether to conduct restoration planning, trustees consider whether injuries have resulted or are likely to result from the incident, whether response actions are insufficient, and whether feasible restoration actions exist. If pursuing restoration, the trustees issue the Notice of Intent to conduct restoration planning (NOI), inviting the PRPs to participate, and establish the administrative record.

The **Restoration Planning** phase includes selecting candidate injuries for analysis, designing assessment studies, and performing the injury assessment. Injury quantification determines the severity, spatial, and temporal extent of injuries relative to baseline. Three metrics may be used: (1) adverse change in the resource; (2) adverse change in resource with translation to reduction in services provided; or (3) direct estimate of the reduction in services.

Then the trustees develop the **Restoration Plan**, which supports the claim for damages. Trustees develop and evaluate a range of alternative restoration actions, which must include consideration of natural recovery. Each alternative has two components: determination of primary restoration to return resources/services to the baseline, and compensatory restoration to compensate for interim losses (losses in services pending return to baseline). Trustees must identify a preferred alternative or alternatives.³⁴

In considering primary restoration, trustees consider actions that return key natural resources and services and would be effective in achieving or accelerating a return to baseline (e.g., replacing essential species, habitats, or services that would facilitate the replacement of other, dependent natural resource or service components).³⁵

In considering compensatory restoration, trustees must scale the restoration to the interim loss. Trustees must first consider actions providing services of the same type and quality and comparable values to those ecological services injured unavailable to the public in the interim between the release and the completion of primary restoration.³⁶ The first preference is the *resource-to-resource* or *service-to-service* approach. It is based on a virtual “trade” in the resources or services lost with those being provided elsewhere. Habitat Equivalency Analysis (HEA) is the standard approach to this trade-off calculation. Alternatively, trustees may use valuation scaling methods.³⁷

Alternatively, trustees may, using *value-to value* methods, compare the interim loss in value of resources/services to the equivalent value of replacement resources/services to the public. Or trustees may use *value-to-cost* methods, estimating the cost of actions to produce equivalent values.³⁸

³⁴ 15 C.F.R. §990.53(a). Each restoration alternative is comprised of primary and/or compensatory restoration components that address one or more specific injury or injuries associated with the incident.

³⁵ 15 C.F.R. §990.53.

³⁶ 15 C.F.R. §990.53(c)(2).

³⁷ C. Jones & DiPinto, L, “The role of ecosystem services in USA natural resource liability litigation,” 29 Ecosystem Services 333-351 (2018). The resource-to-resource/service-to-service approach is most closely analogous to 404 compensatory mitigation.

³⁸ *Id.*

Criteria for selecting alternatives include the “extent to which each alternative benefits more than one natural resource and/or service.”³⁹ Trustees must select the most cost-effective among equally preferable alternatives. Factors include: (1) Cost to carry out the alternative; (2) Extent to which each alternative is expected to meet the trustees’ goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses; (3) Likelihood of success of each alternative; (4) Extent to which each alternative will prevent future injury as a result of the incident, and avoid collateral injury as a result of implementing the alternative; (5) Extent to which each alternative benefits more than one natural resource and/or service; (6) Effect of each alternative on public health and safety.⁴⁰ All service quantities/values are discounted to the date the demand is presented.

The trustees prepare a Draft Restoration Plan (DRP) for public review and comment.⁴¹ The National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) regulations apply to restoration actions by federal trustees. NEPA alternatives analysis, public notice and comment, and mitigation requirements apply when Federal trustees propose to take restoration actions that may significantly affect the quality of the human environment. Federal trustees should develop a DRP that will also serve as an Environment Assessment (EA) or Environmental Impact Statement (EIS) under NEPA. OPA regulations were specifically designed to complement and work with the NEPA planning process, so trustees can combine the planning processes.⁴²

If a **Regional Restoration Plan or existing restoration project** is proposed for use, federal trustees may be able to tier the NEPA analysis to an existing EA or EIS prepared for that plan or project, thus simplifying the environmental review.⁴³ Trustees may consider using a Regional Restoration Plan or existing restoration project where such a plan or project is determined to be the preferred alternative among a range of feasible restoration alternatives.⁴⁴ Trustees may also select a component of a Regional Restoration Plan or an existing restoration project as the preferred alternative, provided that the plan or project: (1) was developed with public review and comment; (2) will adequately compensate the environment and public for injuries; (3) addresses, and is currently relevant to, the same or comparable natural resources and services; and (4) allows for reasonable scaling relative to the incident.⁴⁵ If the scale is greater than that of the compensation required, trustees may only request funding from the RPs equivalent to the scale of the restoration determined to be appropriate for the incident. Trustees may pool such partial recoveries until adequate funding is available to successfully implement the existing plan or project.⁴⁶

³⁹ 15 C.F.R. §990.54.

⁴⁰ NOAA G-PR.

⁴¹ 15 C.F.R. §990.55.

⁴² NOAA G-RP

⁴³ 15 C.F.R. §990.23. (CEQ regulations 40 C.F.R. §§1502.20, 1508.28 describe tiering).

⁴⁴ 15 C.F.R. §990.56.

⁴⁵ Id. NOAA G-RP.

⁴⁶ Id.

Trustees issue the Notice of Availability (NOA) of the DRP and provide for public review. Then they prepare the Final Restoration Plan (FRP) and the final restoration plan record.⁴⁷

Restoration implementation is similar to the process described in the DOI regulations. The trustees prepare and issue the Demand to the PRP(s), open the restoration account, and implement the plan in compliance with applicable laws.

Summary

These complex NRDA procedures are typically implemented in very site-specific ways depending on the affected resources and number of trustees. The procedures typically require substantial scientific assessment work, public notice and participation, and compliance with NEPA in developing the injury assessment and the restoration plan. Nevertheless, they also provide opportunities to integrate assessment, alternatives analysis, and ecological restoration with other plans and programs.

⁴⁷ Trustees may consider a regional restoration plan or existing restoration projects as a restoration alternative. This may be selected, so long as it is preferred under the selection criteria for restoration alternatives and undergoes/has undergone review and comment. They prepare a Notice of Intent to Use a Regional Restoration Plan or Existing Restoration Project, and make it publicly available. §990.56(3). When using a Regional Restoration Plan or existing restoration project, the demand will invite the RPs to implement a component, or advance the trustees' estimate of damages. §990.62.

Clean Water Act Compensatory Mitigation for Impacts to Aquatic Resources⁴⁸

The Clean Water Act's Section 404 program, regulating dredge and fill activities, supports a robust compensatory mitigation process to address *authorized impacts* to the waters of the United States. The Act is intended to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Section 404 of the Act regulates discharges of "dredged or fill material" to the waters of the United States, including wetlands and other aquatic resources. It requires dischargers to apply to the Army Corps of Engineers (Corps) for a permit authorizing any such discharge.⁴⁹ Permitting is carried out by the Corps' 38 district offices. Although the Corps is the permitting authority, the United States Environmental Protection Agency (EPA) is responsible for establishing the environmental guidelines (404(b)(1) guidelines) that the Corps uses to evaluate the impact of proposed projects when considering permit applications and/or adoption of general permits. The EPA also has authority under § 404(c) to veto permits approved by the Corps. Other agencies, including the U.S. Fish & Wildlife Service (FWS), NOAA, and the Natural Resources Conservation Service, have the opportunity to review and comment upon Corps permits, and EPA, FWS, and NOAA may "elevate" disputes over specific proposed permits and policies under § 404(q). The Clean Water Act further requires § 404 permits to be in accordance with state water quality standards under § 401, which gives states an opportunity to assert requirements supported in state law and regulation.⁵⁰

The 404(b)(1) guidelines support the national policy goal of no net loss of wetlands values and functions and provide for a mitigation "sequence" derived from Council on Environmental Quality NEPA regulations, and further supported by the Compensatory Mitigation Rule described below. The mitigation sequence is:

- Avoid impacts;
- Minimize impacts that cannot be avoided; and finally
- Compensate for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required.

Compensatory mitigation to offset permitted impacts to waters of the U.S. is conducted in accordance with the Compensatory Mitigation Rule issued by the Corps and EPA in 2008.⁵¹ In December 2003, Congress required the Department of the Army to promulgate regulations providing fair and efficient standards and procedures for wetland and stream mitigation. The Corps and EPA elected to develop the regulations together, and in 2008 published final regulations. The Compensatory Mitigation Rule standardized requirements for the various compensatory mitigation mechanisms (mitigation banks, ILFs, and permittee-responsible mitigation) to achieve comparable outcomes and promote more

⁴⁸ Portions of this section are adapted from J. McElfish. 2017. Legal Requirements for State Transportation Agency Participation in Conservation Plans (National Cooperative Highway Research Program, Legal Research Digest 75), prepared by the Environmental Law Institute.

⁴⁹ 33 U.S.C. § 1344. This discussion also includes permitting under § 10 of the Rivers and Harbors Act.

⁵⁰ 33 U.S.C. § 1341.

⁵¹ 73 Fed. Reg. 19594 (April 10, 2008).

environmentally protective and durable compensatory mitigation projects.⁵² The rule formalized and expanded requirements based on decades of previous practice.

After a proposed permitted action has been designed to avoid and minimize potential impacts, compensatory mitigation may be required to offset remaining unavoidable impacts. Compensatory mitigation consists of the restoration (re-establishment or rehabilitation), establishment, enhancement, or in certain circumstances, preservation of aquatic resources⁵³ -- typically within the same “watershed” as the permitted impacts. The rule requires the Corps to use a “watershed approach” in determining the appropriate compensatory mitigation, to the extent appropriate and practicable.⁵⁴

Compensation Methods

The Compensatory Mitigation Rule recognizes four compensation methods:⁵⁵

Restoration means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. Restoration is divided into two categories: re-establishment and rehabilitation. *Re-establishment* means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. It results in a gain in aquatic resource area and functions. *Rehabilitation* means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Establishment (creation) means the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area and functions.

Enhancement means the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Preservation means the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

⁵² In-lieu fee programs collect funds from a permittee that has a compensatory mitigation obligation, and use the collected funds to construct and maintain the required compensation, accounted for as mitigation “credits.” ILFs must be operated by a governmental or nonprofit entity. Mitigation banks are sites where advance mitigation is conducted and the resulting credits sold to permittees with compensatory mitigation obligations. Banks may be operated by governments, nonprofits, or for-profit entities. In either case, the bank or ILF must meet regulatory standards for its establishment and operation, including its geographic service area, and each credit sale must be approved by the relevant Corps district with the advice of the Interagency Review Team (IRT). 33 C.F.R. 332.2, 40 C.F.R. 230.92.

⁵³ 33 C.F.R. § 332.2, 40 C.F.R. § 230.92.

⁵⁴ 33 C.F.R. § 332.3(c), 40 C.F.R. § 230.93(c).

⁵⁵ 33 C.F.R. § 332.2, 40 C.F.R. § 230.92.

The Compensatory Mitigation Rule is intended to improve the planning, implementation, and long-term management of compensatory mitigation. It standardized requirements for compensatory mitigation, and required, to the extent appropriate and practicable, that all compensatory mitigation decisions be made in the context of a watershed approach.

Compensation Mechanisms

The Compensatory Mitigation Rule defines three mechanisms by which permittees can satisfy their compensatory mitigation obligations:⁵⁶

Mitigation bank means a site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by DA permits. In general, a mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor.

In-lieu fee (ILF) program means a program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a *governmental or non-profit* natural resources management entity to satisfy compensatory mitigation requirements for DA permits. Similar to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu program sponsor. Unlike mitigation banks, ILFs are authorized to sell a limited number of credits in advance of their production in accordance with an approved mitigation project plan.

Permittee-responsible mitigation means an aquatic resource restoration, establishment, enhancement, and/or preservation activity undertaken by the permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the permittee retains full responsibility.

The Corps recently summarized the key improvements embodied in the Rule as:

- (1) Use of the watershed approach, which involves “consideration of watershed needs and how locations and types of compensatory mitigation projects address those needs;”⁵⁷
- (2) Establishment of a mitigation hierarchy which requires each Corps district engineer to consider the prioritization of compensatory mitigation in the following order⁵⁸ – credits from a mitigation bank; credits from an ILF program; permittee-responsible mitigation under a watershed approach; permittee-responsible onsite, in-kind mitigation; and permittee-responsible offsite and/or out-of-kind mitigation;

⁵⁶ 33 C.F.R. § 332.2, 40 C.F.R. § 230.92.

⁵⁷ See, e.g., Environmental Law Institute and The Nature Conservancy, *Watershed Approach Handbook: Improving Outcomes and Increasing Benefits Associated with Wetland and Stream Restoration and Protection Projects* (2014), available at <https://www.eli.org/research-report/watershed-approach-handbook> (visited Feb. 22, 2018)..

⁵⁸ 33 C.F.R. § 332.3(b), 40 C.F.R. § 230.93(b).

(3) Preparation of a “mitigation plan” with 12 required elements ensuring effectiveness and durability; and

(4) Clear timelines for decision-making.⁵⁹

The “Watershed Approach”

The “Watershed Approach” required by the Compensatory Mitigation Rule applies to all forms of aquatic compensatory mitigation, and especially to the siting and use of 404 mitigation banks and ILFs. The purpose of a watershed approach is to “maintain and improve the quality and quantity of aquatic resources within watershed through strategic selection of compensatory mitigation sites.”⁶⁰ Corps Districts use existing watershed plans, when available, but they may also use other types of plans and information to guide their decisions. In the absence of a prepared watershed plan, district engineers may use data on trends in habitat conversion and loss, cumulative impacts, presence and needs of sensitive species, site conditions that affect the success of compensatory mitigation, and other information. The watershed approach is designed to enhance the aquatic resource mitigation program rather than diminish the ability of the program to support the no net loss policy.

The Rule expressly requires consideration of “the practicability of accomplishing ecologically self-sustaining aquatic resource restoration, establishment, enhancement, and/or preservation at the compensatory mitigation project site.”⁶¹ Site sustainability includes “appropriate siting to ensure that natural hydrology and landscape context” will support the functions of the site over the long term.⁶²

While finding suitable permittee-responsible compensatory mitigation sites within the same watershed as the impacts can sometimes be difficult for permit applicants – particularly where land development has been intensive, or where aquatic sites are scarce to begin with, the development and approval of mitigation banks and ILF programs has helped to ensure that applicants have options to satisfy their compensatory mitigation needs, and increased the likely ecological value of compensatory mitigation activities to watershed health.

The Rule defines the role of geographically-based Interagency Review Teams (IRTs). The IRT consists of federal, state, tribal, and or local regulatory and resource agency representatives with expertise and/or jurisdiction over natural resources activities in the geographic area(s) of the proposed permitted impacts and the proposed compensatory mitigation activities. The IRT “reviews documentation for, and advises the [Corps] district engineer on, the establishment and management of” 404 mitigation banks and ILF programs.⁶³

⁵⁹ Institute for Water Resources. 2015. The Mitigation Rule Retrospective: A Review of the 2008 Regulations Governing Compensatory Mitigation for Losses of Aquatic Resources (IWR 2015-R-03).

⁶⁰ 33 C.F.R. 332.3(c)(1), 40 C.F.R. 230.93(c)(1).

⁶¹ 33 C.F.R. 332.4(c)(3), 40 C.F.R. 230.94(c)(3).

⁶² 33 C.F.R. 332.7(b), 40 C.F.R. 230.97(b).

⁶³ 33 C.F.R. § 332.2, 40 C.F.R. § 230.92. Where a mitigation bank or ILF program is proposed to satisfy requirements of another federal, tribal, state, or local program in addition to 404, the responsible agency may be invited to co-chair the IRT. 33 C.F.R. 332.8(b), 40 C.F.R. 230.98(b).

Each section 404 mitigation bank and ILF must have a program instrument, approved by the Corps district with the advice and comments of the IRT. The program instrument must include:⁶⁴

- Definition of the geographic service area for use of credits in compensatory mitigation. This must demonstrate use of the watershed approach.
- Accounting procedures for tracking the generation and sale of credits.
- Legal responsibility for carrying out compensatory mitigation obligations and implementing the mitigation plan.
- Default and closure procedures and guarantees.
- Reporting protocols.
- A mitigation plan with the elements required by the Rule.
- Credit release schedule and milestones for the release and availability of credits (or advance credit allocation, credit and fee methodology, and description of program account, for ILFs).

Mitigation banks and ILFs must prepare a mitigation plan for each mitigation site,⁶⁵ which must include the following elements.⁶⁶

- a. The mitigation plan must describe the objectives for the compensatory mitigation project(s) including resource type, methods of compensation and relationship to watershed needs.
- b. Site selection factors must be documented, including the consideration of watershed needs and practicality of self-sustaining ecological outcomes.
- c. Legal arrangements for long term site protection must be described and documented to ensure the legal status of the site in perpetuity.
- d. Baseline ecological characteristics of the compensatory mitigation site must be described, including descriptions of historic and existing plant communities, hydrology, soils, mapped characteristics, and delineation of waters of the U.S.
- e. The number of credits to be generated by the compensatory mitigation sites must be described, including the rationale and methodology used to determine the credits.

⁶⁴ 33 C.F.R. 332.8(d)(6), 40 C.F.R. 230.98(d)(6).

⁶⁵ Banks must complete this plan and have it approved before selling any credits; in contrast, ILFs can sell specified numbers of “advance credits” before these plans are prepared and approved, but must do so in accordance with a previously approved “compensation planning framework.”

⁶⁶ 33 C.F.R. 332.4(c), 40 C.F.R. 230.94(c).

- f. A mitigation work plan must be provided, including engineering specifications, construction methods, timing, sequence, source of water, methods for establishing plant communities, grading, erosion control and other relevant factors.
- g. Maintenance activities must be described and a schedule provided to ensure the continued viability of the resources once construction has been completed.
- h. Ecological performance standards must be established, which will enable the operator and regulators to determine whether the compensatory mitigation project is achieving its objectives.
- i. Monitoring requirements, including description of the parameters to be monitored, must be established and a schedule for monitoring and reporting must be supplied.
- j. A long-term management plan must be established to ensure continued performance of the site after all performance standards have been met, and must include provision for long-term financing mechanism and identification of the party responsible for long-term management.
- k. An adaptive management strategy must be provided, to address unforeseen changes in site conditions or other components of the project, including identification of the party or parties responsible for implementing adaptation measures and responses.
- l. Financial assurances must be documented, including their type and sufficiency to ensure a “high level of confidence that the compensatory mitigation project will be successfully completed in accordance with its performance standards.

When ILF programs secure sites and develop a site-specific mitigation plan, they must do so consistent with a “Compensation Planning Framework” that was developed as part of their approved ILF program instrument.⁶⁷ The compensation planning framework must contain the following elements:

- a. Geographic service areas for the ILF, including a watershed-based rationale for the delineation of each service area;
- b. Description of the threats to aquatic resources in the service area(s), including how the ILF program will help offset impacts resulting from those threats;
- c. Analysis of historic aquatic resource losses in the service area(s);
- d. Analysis of current aquatic resource conditions

⁶⁷ 33 C.F.R. 332.8(c), 40 C.F.R. 230.98(c). The compensation planning framework supports the “watershed approach.”

- e. Statement of aquatic resources goals and objectives for each service area, including a description of the general amounts, types and locations of aquatic resources the program will seek to provide;
- f. A prioritization strategy for selecting and implementing compensatory mitigation activities;
- g. Explanation of how any preservation objectives satisfy criteria limiting the use of preservation as a compensatory mitigation tool;
- h. Description of public and private stakeholder involvement in the ILF planning and implementation;
- i. Long-term protection strategies for activities conducted by the ILF sponsor;
- j. Strategy for periodic evaluation and reporting on progress, and process for revising the compensation planning framework as necessary.⁶⁸

ILFs may make a “limited number” of advance credits available to trustees when the instrument is approved. The number of advance credits is determined by the Corps, in consultation with the IRT, taking into account the compensation planning framework, the sponsor’s past performance, and the projected financing necessary to begin planning and implementation of ILF projects. As released credits are produced by ILF projects they must be used first to fulfill any advance credits that have been sold before any other credits become available to permittees.⁶⁹

The Compensatory Mitigation Rule has produced a regularized approach to 404 compensatory mitigation, and arguably has stimulated the creation of number 404 mitigation banks and ILF programs as expectations have become standardized.

State and tribal wetland programs have been coordinated with 404 activities in many instances. Many of these operate their own regulatory programs with requirements for compensatory mitigation (which is frequently coordinated with the Corps via instruments like “state programmatic general permits.” State and tribal representatives also serve on IRTs across the country, and have gained experience with the approval and oversight of 404 mitigation banking and ILF programs – which may help in coordinating such compensatory mitigation mechanisms with NRDA actions and decisions.

Conservation Banking

Although this report focuses chiefly on integration of Clean Water Act compensatory mitigation with NRD processes, we also briefly address conservation banking – a parallel approach in which habitats are restored and conserved to meet federal and state requirements related to conservation of threatened and endangered species.

⁶⁸ Id.

⁶⁹ 33 C.F.R. § 332.8(n), 40 C.F.R. § 230.98(n).

It is important to note that the Clean Water Act Compensatory Mitigation Rule does provide that the compensatory mitigation projects it governs (including 404 mitigation banks and ILF programs) may be used to “satisfy the requirements of other programs,” so long as they comply with the terms and requirements of those other programs.⁷⁰ These programs expressly include compensatory mitigation under the federal Endangered Species Act (ESA). Under no circumstances, however, may credits used to satisfy 404 compensatory mitigation obligations also be used to provide mitigation for another permitted activity; however compensatory mitigation projects may be designed to “holistically” address requirements under multiple programs and authorities for a single activity.⁷¹

The ESA provides the basis for mitigation activities to protect listed threatened and endangered species and their critical habitats.⁷² Section 7 requires consultation with the FWS or NOAA (depending on species) when a federal activity (including federal funding activities) may have a direct or indirect adverse impact on a listed species or critical habitat. And Section 10 provides an opportunity for a non-federal actor to obtain an “incidental take permit” in connection with activities that may otherwise result in a lawful take of listed species, in exchange for certain affirmative conservation activities including a Habitat Conservation Plan (HCP).⁷³

Conservation banking is the practice of restoring, enhancing, or preserving habitat in perpetuity to compensate for adverse impacts to listed species or their habitats. The concept was first formally introduced at the state level in California, which released its policy on conservation banking in conjunction with the Carlsbad Highlands Conservation Bank. The California legislature enacted the Natural Community Conservation Planning Act of 1991 (NCCPA), amended in 2003.⁷⁴ The NCCPA implemented a large-scale regional planning process to protect entire biological communities, as opposed to focusing on a single species.⁷⁵ Similar to HCPs, but on a larger scale, the development of Natural Community Conservation Plans (NCCPs) are required under NCCPA in order to authorize incidental take permits under California’s Endangered Species Act.⁷⁶

The first federal policy on conservation banking was issued in 2003, as a FWS memorandum, *Guidance for the Establishment, Use, and Operation of Conservation Banks*. This document guides FWS and applicants through the conservation bank development, management, and monitoring processes.⁷⁷

⁷⁰ 33 C.F.R. § 332.3(j), 40 C.F.R. § 230.93(j).

⁷¹ Id.

⁷² 16 U.S.C. §§1531-1544.

⁷³ U.S. Department of Interior, Office of Policy Analysis. 2013. A Preliminary Analysis of the Conservation Banking Program and Results from a Survey of USFWS Staff. Mitigation may also occur under a Candidate Conservation Agreement for species not yet listed.

⁷⁴ Paul Cylinder et al., *Understanding the Habitat Consecration Planning Process in California: A Guidebook for Project and Regional Conservation Planning* (2004), available at http://www.ca-ilg.org/sites/main/files/file-attachments/resources__HCP_book_2004_final.pdf.

⁷⁵ Natural Community Conservation Planning Act, Stat. 2002, Ch. 4, Sec.2 (2003).

⁷⁶ California Endangered Species Act, Fish & Game Code §§ 2050-2069.

⁷⁷ Memorandum from the FWS on Guidance for the Establishment, Use, and Operation of Conservation Banks (May 8, 2003), available at <https://www.fws.gov/policy/library/2003/03-11458.html> [hereinafter *Guidance*]; 68 Fed. Reg. 24753 (May 8, 2003).

A total of 149 conservation banks have been approved by the FWS in 15 states (Arizona, California, Colorado, Florida, Georgia, Kansas, Maryland, Mississippi, Oklahoma, Oregon, South Carolina, Texas, Utah, Washington, and Wyoming) and Saipan.⁷⁸

Generally, conservation banks are used to mitigate for activities regulated under the ESA §7 and §10, but they can also be used satisfy state and local programs. They are created through the acquisition or protection of existing habitat, restoration or enhancement of disturbed habitat, creation of new habitat, or the management of habitat for specific biological characteristics. To establish a conservation bank, a legally binding agreement is required between the property owner and the regulatory agency or agencies authorizing the impacts or takes. The conservation bank agreement includes specific information on the property, management activities, funding sources, and long-term stewardship of the bank. It also governs the responsibilities and duration of involvement for all concerned parties. The main components of a bank agreement include:

- Conservation bank name, property location, legal description, and GPS coordinates.
- A map of the property on a minimum scale of 7 minutes, a U.S. Geological Survey quad map or finer scale if available.
- Name of the person(s)/organization(s) to hold fee title to the conservation bank.
- Name of the person(s)/organization(s) to hold site protection instrument (e.g., conservation easement).
- Name of the person(s)/organization(s) to hold those who will have management responsibilities and timeframe of management.
- A preliminary title report on any pre-existing easements or encumbrances on the property, including any mineral, water, hunting, or prescriptive rights associated with the property.
- A list of compatible activities or land uses possible on the property, such as public access.
- A description of the biological value of the property, including information on the types of habitats and species present on the land.
- The number and types of credits to be generated by the conservation bank and the methodology used in this determination.
- Accounting system to track credits, funding, and reporting requirements.
- A description of the conservation bank's service area, to be determined in conjunction with the Services.

⁷⁸ *Reports: Approved and Sold-Out Conservation Banks*, RIBITS, available at <https://ribits.usace.army.mil/> (last visited Dec 28, 2017).

- The performance standards that must be achieved.
- If the conservation bank will be implemented in phases, a description and delineation of each phase is required, in addition to an explanation for the use of phases and the process for terminating the bank prior to implementation of all the phases.
- Explanation of compliance with any applicable state and federal laws.
- Results of Phase I Hazardous Materials survey for the property and any plans to remove trash, structures, or other items that reduce the conservation value of the property.
- Provisions allowing the regulatory agency to enter the property for inspections, assurances, or other duties.
- Contingency plans and a dispute resolution process to be used if the conservation bank owner/manager fails to comply with the provisions outlined in the agreement.⁷⁹

A management plan is also required element in a conservation bank agreement.⁸⁰ At a minimum, a management plan should contain the following information:

- Property description, biological resources, cultural/historical features, surrounding land uses, and proximity to open spaces or conservation lands.
- Identification of biological goals and objectives and how to implement them.
- Authorized and prohibited activities on the property.
- Management needs of the property, including control of public access/use, restoration and enhancement of habitats, and maintenance of facilities.
- Budget and necessary endowment funds.
- Monitoring schedule and reporting requirements.
- Adaptive management practices, decision trees, or other future management structures.⁸¹

On December 27, 2016, the FWS issued a new Endangered Species Act Compensatory Mitigation Policy.⁸² The Compensatory Mitigation Policy establishes compensatory mitigation standards for threatened and endangered species and critical habitats and clarifies previous guidance documents on

⁷⁹ Guidance, at 16-17.

⁸⁰ Guidance, at 15.

⁸¹ *Id.*

⁸² Endangered Species Act Compensatory Mitigation Policy [hereinafter Compensatory Mitigation Policy], 81 Fed. Reg. 95316 (Dec. 27, 2016).

mitigation mechanisms and conservation banking.⁸³ In January 2018, the FWS then issued Interim Guidance on Implementing the Final Endangered Species Act Compensatory Mitigation Policy.⁸⁴

It is important to note that pursuant to Secretarial Order 3349, issued on March 29, 2017 by Secretary of the Interior Ryan Zinke, both the compensatory mitigation policy and interim guidance are under evaluation as posing possible obstacles to energy development.⁸⁵ Thus, it is possible that conservation banking requirements may revert to the prior 2003 approach, or some mix of old and new approaches.

The 2016 Compensatory Mitigation Policy sets forth nine standards:

1. *Siting Sustainable Compensatory Mitigation*: Mitigation should be located in areas identified in a landscape-scale conservation plan or mitigation strategy that will provide the greatest long-term benefits to affected resources.⁸⁶
2. *In-Kind for Species*: While compensatory mitigation for adversely impact species must be in-kind, the habitat type does not necessarily need to be the same as the type affected. Depending upon the needs of the affected species, the best conservation outcome may be achieved by offsetting a different type of habitat for the affected species, such as in the varying needs of migratory species.⁸⁷
3. *Reliable and Consistent Metric*: To the extent possible, the metrics used to calculate both conservation credits and debits must be consistent and reliable. Any deviations or uncertainties should be transparent, explained, and based on the best available science.⁸⁸
4. *Judicious Use of Additionality*: The benefits of compensatory mitigation must be additional to those that would normally have occurred in the course of routine practices or mandates. A mitigation measure is considered “additional” if the “benefits of the measure improve upon the baseline conditions of the impacted resources and their values, services, and functions in a

⁸³ Compensatory Mitigation Policy §1, §3. The policy does not apply retroactively. It “clarifies” guidance given in the 2003 Conservation Banking Guidance and the 2008 Recovery Crediting Guidance. 81 Fed. Reg. 95316. However, both the 2003 and 2008 guidance documents were expressly “replaced” just three weeks later by the FWS “Interim Guidance on Implementing the Final Endangered Species Act Compensatory Mitigation Policy (Jan. 17, 2017).

⁸⁴FWS, Interim Guidance on Implementing the Final Endangered Species Act Compensatory Mitigation Policy (Jan. 17, 2017) [hereafter “Interim Guidance”].

https://www.fws.gov/endangered/improving_ESA/pdf/Interim_Guidance_for_Implementing_the_Endangered%20Species%20Act%20Jan%202017.pdf (visited March 30, 2018). The Interim Guidance was issued without its own notice and comment but was constructed in large part from detailed provisions that had been in the *proposed* Compensatory Mitigation Policy in September 2016 that were moved to the Interim Guidance when the final Compensatory Mitigation Policy was adopted. See 81 Fed. Reg. at 95319-95320 (“We have removed these elements from this policy and will address them in the implementation guidance”).

⁸⁵ Department of the Interior, Secretarial Order No. 3349 “American Energy Independence,” (March 29, 2017).

⁸⁶ Compensatory Mitigation Policy §5.1.

⁸⁷ Compensatory Mitigation Policy §5.2.

⁸⁸ Compensatory Mitigation Policy §5.3.

manner that is demonstrably new and would not have occurred without the compensatory mitigation measure.”⁸⁹

5. *Timing and Duration*: The timing and duration of projects are also important components to successful mitigation. Conservation objects must be achieved in a reasonable timeframe and must at a minimum continue for the duration of the impacts.⁹⁰
6. *Ensure Durability*: As most mitigation measures must be maintained in perpetuity, adequate legal and financial protection must be in place to ensure long-term viability. Long-term management needs and compatible activities or land uses allowed on the site must be carefully considered.⁹¹
7. *Effective Conservation Outcomes and Accountability*: Assessment of mitigation will ensure that conservation goals and objectives are being achieved.⁹²
8. *Encourage Collaboration*: Landscape scale mitigation planning requires coordination at all levels of government with the affected community and stakeholders. FWS will solicit input at all stages of the mitigation process.⁹³
9. *Maintain Transparency and Predictability*: The policy emphasizes the need to maintain transparency and regulatory predictability for all parties involved in mitigation. Information such as mitigation instruments, plans, and other documents will be shared publicly and timely via the Regulatory In-lieu fee and Bank Information Tracking System (RIBITS) maintained by the Corps of Engineers, or other online systems available to the public.⁹⁴

The 2017 Interim Guidance expressly replaces the 2003 *Conservation Banking Guidance*. Under the Interim Guidance:

- All habitat-based mitigation projects “must be sited on ecologically appropriate habitat for the proposed covered species. Advance planning for mitigation projects will include the use of landscape-scale conservation plans and mitigation strategies where such plans exist.”⁹⁵
- Habitat-based mitigation projects must be of sufficient size to “ensure the maintenance of ecological integrity in perpetuity.”⁹⁶
- Mitigation project boundaries must include appropriate buffers against effects from adjacent lands.⁹⁷ Developed areas should be excluded, and mineral split-estate lands acquired where possible to protect conservation values of the project.⁹⁸

⁸⁹ Compensatory Mitigation Policy §5.4.

⁹⁰ Compensatory Mitigation Policy §5.5.

⁹¹ Compensatory Mitigation Policy §5.6.

⁹² Compensatory Mitigation Policy §5.7.

⁹³ Compensatory Mitigation Policy §5.8.

⁹⁴ Compensatory Mitigation Policy §5.9.

⁹⁵ Interim Guidance §4.1.

⁹⁶ Interim Guidance §4.1.1.

- The FWS will review each stage of mitigation planning when it involves only FWS-administered resources. However, if a mitigation program is intended to address impacts under other authorities or generates credits to be sold, the FWS will serve on an Interagency Mitigation Review Team, which may be the Interagency Review Team (IRT) created under the Clean Water Act Compensatory Mitigation Rule when the mitigation includes wetlands and waters of the United States.⁹⁹
- Prospective mitigation sponsors must submit draft mitigation proposals with required elements, followed by a complete mitigation proposal with information about the site, qualifications of the mitigation provider, objectives of the project, site selection considerations, baseline information, credit evaluation methods, a mitigation work plan, ownership arrangements and a long-term management strategy, title report, environmental risk assessment, and assurances of water rights.¹⁰⁰
- For conservation banks, ILF programs, or habitat credit exchange¹⁰¹ programs the mitigation proposal must also include determination of need for the project, proposed service areas, and proposed types and number of conservation credits to be generated.¹⁰²
- A long-term management plan is required, along with short-term and long-term financial assurances, and a closure plan that describes at what point a mitigation project or program is closed and what responsibilities remain.¹⁰³
- Compliance monitoring and reporting are required.¹⁰⁴

⁹⁷ Interim Guidance §4.1.1.1

⁹⁸ Interim Guidance §§4.1.2, 4.1.3.

⁹⁹ Interim Guidance §5.1.2.

¹⁰⁰ Interim Guidance §5.2.2.

¹⁰¹ Habitat Credit Exchanges (HCEs) are a relatively new approach consisting of an “environmental market operating as a clearinghouse” to match compensatory mitigation providers with permittees who need habitat or species conservation credits. HCEs are subject to FWS approval and are required to meet all the same standards and elements as other forms of compensatory mitigation. Interim Guidance §3.1.

¹⁰² Interim Guidance §5.2.2.

¹⁰³ Interim Guidance §§5.2.3.4.2, 5.2.3.6, 5.2.3.8.

¹⁰⁴ Interim Guidance §9.1, 9.2.

A Note on Terminology

The NRDA programs and the 404 and conservation banking programs use many similar terms in different ways. This can produce confusion when state and tribal trustees involved in NRDA decisions are determining whether and how to engage with these other frameworks to address natural resource damage claims.

Compensation and Restoration

In the 404 program, **compensatory mitigation** means “the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved” in connection with activities authorized under a Corps of Engineers permit. 33 C.F.R. 332.2, 40 C.F.R. 230.92.

Restoration (in the 404 program) is merely one method used to generate compensatory mitigation. It is the “manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource.”

In the NRDA program, **restoration** is the outcome of a “restoration plan” which is intended to *make the public whole* for natural resource damages via “restoration, rehabilitation, replacement, or acquisition of equivalent resources.” It is thus used to define the entire objective of the program (but note that it is also one of the methods used to accomplish the objective). **Restoration** consists of two distinct components: **primary restoration**, which includes both natural recovery and direct actions to restore natural resources and services to baseline conditions on an accelerated timeframe, and **compensatory restoration** to compensate for *interim loss* of natural resources and services pending recovery to baseline. 15 C.F.R. 990.53 (b), (c). Thus, use of the term “**compensatory**” in NRDA accounts only for interim losses, not the whole of restoration activities.

Banking

In 404, a **mitigation bank** is “a site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by [Corps of Engineers] permits.” Banks are governed by approved banking instruments and sell compensatory mitigation credits to permittees. 33 C.F.R. 332.2, 40 C.F.R. 230.92

The FWS defines **conservation bank** in very similar terms, but substitutes “ecological functions and services expressed as credits for specified species” that are later used to compensate for impacts occurring elsewhere to the same species. (FWS ESA Comp. Mitig. Policy)

In the NRDA program, a **restoration bank** is “any arrangement under which natural resource trustees agree to recognize and accept from a settling party restoration credits produced by a third party in lieu of cash payments or promises by the third party to perform the work; and instances where trustees purchase such credits using recovered funds from PRPs.” Bank credits are “recognized” and “accepted” by trustees (NOAA Guidance) The Louisiana state regulations define a NRD Restoration Bank as a site where land or resources are “restored, rehabilitated, or replaced” in accordance with regulations “for the purpose of restoration of natural resources and services equivalent to those injured by oil spills in the Louisiana coastal area.” §107.B.

Credits

A **credit** under 404 is “a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic functions is based on the resources restored, established, enhanced, or preserved.” 33 C.F.R. 332.2, 40 C.F.R. 230.92. It is typically expressed in acres or linear feet of a particular aquatic resource type.

The FWS adapted the 404 definition of **credit** for conservation banking: “a defined unit representing the accrual or attainment of ecological functions and/or services for a species at a mitigation site or within a mitigation program.” (FWS Interim Guidance). It is typically expressed in terms of species or habitat units.

NRDA regulations and policies do not directly define **credit**, but use the term in ways similar to the other programs. NOAA guidance specifies that the NRDA trustees must “scale natural resource damage liability in some form of ecological currency, such as discounted ecological service acre-years, using methodologies like habitat equivalency analysis.” The use of a credit defined in discounted ecological service-acre-years (DSAYs) to satisfy a PRP’s liability must be supported by “recognition” of the bank and “acceptance of the nature and value of the credits it produces” by the trustees. The units used in NRDA reflect the linkage of the concept to compensation for interim losses. Thus, the NRDA credit encompasses a temporal component (while the 404 banking or ILF credit or conservation bank credit typically accounts for these issues by setting compensation ratios for authorized impacts).

Advance mitigation/restoration

Advance mitigation in the 404 program is the concept that credits may be generated by a 404 bank (for example) before any permitted impact to waters of the United States occurs. Such credits may be used to satisfy compensatory mitigation requirements. A similar concept is recognized by FWS for conservation banking and in HCPs.

Advance restoration in the NRDA program is the unrelated concept that *after* the occurrence of an incident giving rise to NRD liability, but before conclusion of a final settlement, PRPs may enter into agreements with trustees to fund restoration activities that will take place *before* completion of the Damage Assessment and before full development of the Restoration Plan.

The DOI NRDAR Guidance includes an additional concept, analogous to 404 advance mitigation, that a PRP or third party may undertake advance restoration activities in anticipation of marketing, or using, such restoration to address *future* liability for NRD. (DOI Guidance). However, the NOAA Guidance counts restoration activities occurring prior to an incident as part of the “baseline” and does not allow their use as advance restoration to address future liability. (NOAA Guidance).

EXISTING GUIDANCE ON NRDA BANKING

In 2015, a Presidential Memorandum directed each federal natural resource trustee agency to “develop guidance for its agency’s trustee representatives describing the considerations for evaluating whether, where, and when restoration banking or advance restoration projects would be appropriate as components of a restoration plan adopted by trustees.”¹⁰⁵ The responsive guidance documents were issued by DOI and NOAA in December 2016. However, the 2015 Presidential Memorandum was revoked by the succeeding administration in 2017.¹⁰⁶ This leaves the guidance documents in uncertain status. DOI has removed its guidance document from its website.¹⁰⁷

Under the guidance documents, and reflecting recent practical experience, the DOI and NOAA allow using restoration banks to offset or fully satisfy NRD liability under their regulatory frameworks. The DOI imposes the same requirements on restoration banking as it does for any restoration alternative in its NRDA process, and its guidance discusses factors likely to be affected by NRDA restoration banking. In contrast, the NOAA guidance defines eleven requirements for a trustee’s using a restoration bank as a restoration alternative.

U.S. Department of the Interior (DOI) Guidance¹⁰⁸

The DOI memorandum describes how to apply restoration banking as a component of restoration plans under the DOI’s natural resource damages assessment and restoration (NRDAR) framework.¹⁰⁹ Various restoration banking tools may be applicable to natural resource damage (NRD) claims, such as “existing CWA Section 404 mitigation and ESA conservation banks with the ability to flexibly use their credits... and potential future NRDAR-specific bank entities.”¹¹⁰ However, while existing mitigation banking methods may be applicable to restoration banking, mitigation banking is not given preferred status in NRD cases.¹¹¹

¹⁰⁵ Presidential Memorandum, Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment, 80 Fed. Reg. 68,743 (Nov. 6, 2015).

¹⁰⁶ Executive Order 13783, Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16,093 (Mar. 31, 2017).

¹⁰⁷ DOI Secretary’s Order No. 3360, Rescinding Authorities Inconsistent with Secretary’s Order 3349, “America’s Energy Independence” (Dec. 22, 2017), does not expressly revoke the DOI NRDA guidance but continues the process begun in Secretary’s Order 3349 (March 29, 2017) of all DOI bureaus and agencies reconsidering, modifying, or rescinding documents and policies arising from the prior Presidential Memorandum and the previous DOI Secretary’s now-revoked Order No. 3330) on mitigation policy. NOAA’s guidance document is still available.

¹⁰⁸ U.S. DEP’T OF THE INTERIOR, OFFICE OF RESTORATION AND DAMAGE ASSESSMENT, DOI NRDAR GUIDANCE FOR PRESIDENTIAL MEMORANDUM ON MITIGATING IMPACTS ON NATURAL RESOURCES FROM DEVELOPMENT AND ENCOURAGING RELATED PRIVATE INVESTMENT 1, 2 (2016).

¹⁰⁹ *Id.* at 1.

¹¹⁰ *Id.* at 3.

¹¹¹ *See id.* n.2.

The DOI detailed four general categories of restoration banking that would be applicable in the NRDAR context:¹¹²

- (1) Restoration undertaken in advance of potential impacts, which includes banks for CWA 404 mitigation, ESA conservation, or NRDAR-specific banks set up *before* the injury.
- (2) Restoration undertaken after injury occurs, but *before* a completed assessment.
- (3) Restoration undertaken after a completed assessment, but *before* a final settlement.
- (4) Restoration projects undertaken after a final settlement; these provide the “potential to combine settlements with common resources needing to be restored within a geographical location.”

Categories 1-3 expressly include third-party restoration banks that market credits to PRPs at NRD sites. These restoration banks are subject to the same requirements that apply to all NRDAR restoration alternatives.¹¹³ For example, such restoration banks must have a nexus to the natural resource injury, be of a scale proportionate to the injury, be considered among a reasonable range of alternative restoration actions, and be presented to the public for comment. Category 4 includes banks and other third-party projects that can meet the needs for restoration using recovered funds, and would necessarily meet these same standards.¹¹⁴

The DOI guidance does not expressly discuss ILF programs because it focuses on “advance restoration”, but it does include restoration activities undertaken in advance of final settlement (funded by PRPs), so presumably ILF credits could be accepted both at that stage and at final settlement.¹¹⁵

Like all NRDAR restoration projects, restoration banks are also evaluated “within the criteria established by the CERCLA, CWA, OPA, environmental compliance statutes... and their corresponding regulations.”¹¹⁶ However, the “unique temporal nature of restoration banks” will affect evaluation of some criteria, including “nexus to injury, cost-effectiveness, feasibility; and the relationship of expected costs to expected benefits.”¹¹⁷ To satisfy the nexus requirement, restoration bank projects “must address and be ‘currently relevant to, the same or comparable natural resources and services as those identified as having been injured.’”¹¹⁸ When considering cost-effectiveness, trustees can consider the potential reduction in “opportunity costs related to implementation timelines” that banking offers.¹¹⁹ Trustees can also quickly move to considering the long-term feasibility of a restoration bank project because evaluating feasibility is more easily done when the project is already completed or nearing

¹¹² See *id.* at 4 tbl.1.

¹¹³ *Id.* at 3.

¹¹⁴ See *id.*

¹¹⁵ *Id.* at 2.

¹¹⁶ *Id.* at 4.

¹¹⁷ *Id.* at 5.

¹¹⁸ See *id.* at 6 (citing 15 C.F.R. § 990.56(b)(iii)).

¹¹⁹ *Id.*

completion.¹²⁰ Finally, in evaluating the cost-benefit relationship for a restoration bank, trustees can consider variables such as the increased certainty in analyzing a known banking approach, the more straightforward cost estimation with bank approaches, and the portfolio approach taken by many restoration banks which often allows projects to leverage benefits to multiple resources.¹²¹

The DOI recommends that trustees consider additional factors when evaluating restoration banks as an alternative under NRDAR cases.¹²² Trustees should ensure that each bank may use its credits for NRDAR purposes,¹²³ and they need assurance that credits are not double-counted under other programs.¹²⁴ Additionally, Trustees should determine how pre-existing bank credits are valued and applied to NRDAR cases; and they need to show that projects represent additional restoration rather than a part of the baseline conditions.¹²⁵ Specifically, the DOI guidance allows trustees to utilize pre-existing bank restoration credits to address NRDAR liabilities, but it advises trustees to be “prepared to discuss” public concerns that such pre-existing credits already exist and so might be considered part of the “baseline” rather than restoration. The guidance suggests that a suitable response explains that such projects were undertaken with “advance restoration” in mind.¹²⁶

The DOI guidance briefly mentions other considerations, including “the length of time of land protection, the compatible and non-compatible uses described in the bank instrument or prospectus, the performance history of the bank, the extent of financial assurances, whether the monitoring and maintenance program is consistent with the Trustees’ goals, whether anticipated long-term management activities have been adequately described and funded, whether there are additional planned restoration efforts, and the nature of any adaptive management plan.”¹²⁷

National Oceanic and Atmospheric Administration (NOAA) Guidance

The (NOAA) guidance lays out specific requirements for using restoration banking in its Damage Assessment, Remediation and Restoration Program (DARRP).¹²⁸ Under this new guidance, restoration banking covers any arrangement where trustees agree to recognize and accept from a PRP restoration credits produced by a third party to offset the PRP’s NRD liability, and situations where trustees directly

¹²⁰ See *id.* at 7. In cases of lengthy remedial activities, Trustees may also consider planning for new restoration banks to be considered among the restoration alternatives. See *id.*

¹²¹ *Id.*

¹²² See *id.* Because NRDAR is so case-specific, the considerations in this guidance are not an exhaustive list. See *id.* at 9.

¹²³ Regulations concerning CWA § 404 mitigation banks provide them the flexibility to use their credits to satisfy other programs. See *id.* at 7 n.11.

¹²⁴ See *id.* at 8.

¹²⁵ See *id.*

¹²⁶ *Id.*

¹²⁷ *Id.* at 9.

¹²⁸ The December 1, 2016 guidance supersedes and replaces NOAA’s 2007 “Restoration Banking Preliminary Working Policy.” NAT’L OCEANIC AND ATMOSPHERIC ADMIN., DAMAGE ASSESSMENT, REMEDIATION AND RESTORATION PROGRAM, GUIDANCE FOR RECOGNITION AND USE OF RESTORATION BANKS IN NATURAL RESOURCE DAMAGE ASSESSMENTS 1, 2 (2016) avail. at <https://www.darrp.noaa.gov/sites/default/files/NOAA%20NRDA%20Restoration%20Banking%20Guidance%202016%20Final.pdf> (visited March 30, 2018).

purchase those credits using funds recovered from PRPs.¹²⁹ Furthermore, restoration bank projects include those developed by a PRP or group of PRPs who produce more credits than required to satisfy their own liability and projects developed by third parties as part of a profit-making venture or to serve other goals.¹³⁰ The NOAA guidance observes that restoration banking may be “particularly useful” in cases where there are multiple PRPs or where suitable restoration opportunities are limited because of constraints on the availability of land.¹³¹ In addition, this approach may be useful where the damage is to species that benefit from larger, intact habitats, and makes it easier to pool liability to support larger restoration projects.¹³²

To use restoration banks under the DARRP framework, trustees must recognize and accept the restoration bank and the credits the bank produces.¹³³ The NOAA guidance details specific items necessary for trustees to satisfy the recognition and acceptance requirements. Trustees may provide technical assistance to bank developers, provided the developers or responsible parties agree to reimburse the costs of providing assistance.¹³⁴

To be recognized, restoration banks must meet trustee goals for the site and bank projects must be selected according to applicable selection criteria and procedures. Trustees must provide notice to PRPs and the public of any agreement to recognize restoration bank credits.¹³⁵ Trustees must retain responsibility for determining and measuring restoration credits. Credits must have a “demonstrable reasonable nexus” to the natural resource injury.

Trustees will accept credits only where they have a legally enforceable agreement with the restoration bank developer (or with the settling party or parties who will guarantee the performance of the developer). Significantly, under the NOAA Guidance, trustees will only accept credits that are produced under trustee oversight. NOAA says that trustees will not recognize credits generated by a bank prior to the injury, nor credits produced by a bank after the injury but before an agreement with the trustees.¹³⁶ Thus, unlike the DOI guidance, the NOAA guidance provides that where the credits are from a pre-existing bank, the trustee will only accept credits generated by the bank *after* the injury has occurred and generated *after* an agreement with the trustees is in place. Under the NOAA guidance, conservation banks or 404 mitigation banks that have previously generated an inventory of credits cannot sell those credits to satisfy NRDA liability.¹³⁷ ILFs may be able to sell credits (as many of these are generated *after* receipt of funds), but will not be able to sell from their existing inventories.

¹²⁹ *See id.*

¹³⁰ *See id.*

¹³¹ *Id.* at 3.

¹³² *Id.*

¹³³ *See id.* at 3-7.

¹³⁴ *See id.* at 5, no. 3.

¹³⁵ *See id.* at 4, 7 nos.1 & 9.

¹³⁶ *See id.* at 5, nos. 4, 5, 6, 7.

¹³⁷ *Id.* at 5, no. 7. (“Trustees will agree to accept only those restoration credits generated by the bank after an agreement is in place with the restoration bank developer. Trustees also will not agree to accept any NRDA restoration bank credits that are generated prior in time to the injuries to which they are intended to apply.”).

Where an agreement is in place, trustees may permit advance *release* of credits in satisfaction of liability provided specific conditions are met; but a significant share of the total project credits shall not be sold before “full achievement of ecological performance standards.”¹³⁸

Agreements by trustees to recognize banks, provide technical assistance to developers, and accept credits must be made in writing, signed by the parties, and submitted to the Trustee Management Team (TMT) for approval. The bank recognition agreement must include terms addressing: (a) the relevant bank service area; (b) the protection of bank property; (c) the project design, performance criteria, and credit calculations and projections; (d) the credit release schedule; (e) financial assurances; (f) funding for long-term stewardship of the site; (g) credit sales accounting and transparency; and (h) non-exclusivity of using bank credits to resolve NRDA liability.¹³⁹ Trustees “should indicate” that even where a bank is available, purchase of credits is not the only or preferred means to resolve NRD liability.¹⁴⁰

Finally, trustees must ensure that all restoration bank credits sold are retired and not made available for resale or double counted under another regulatory scheme. Trustees may recognize and accept credits from banks previously authorized under another regulatory scheme if: (a) the project has a “demonstrable reasonable nexus” to the natural resource injury; (b) the project meets all standards and requirements imposed on other NRDA projects recognized by the trustees; and (c) the credits were generated after an agreement is in place with the bank developer.¹⁴¹

Current Experience with NRDA Banking

NOAA’s DARRP Trustee Management Team has approved restoration bank projects at several sites, even before the guidance.¹⁴² OPA regulations can be interpreted as envisioning restoration banks, stating that “[t]rustees may select a component of a Regional Restoration Plan or an existing restoration project” that (1) adequately compensates the environment and public for injuries; and (2) relates to the same or comparable natural resources and services.¹⁴³ However, as noted above, the 2016 NOAA guidance places limits on what credits can be recognized from existing projects.

A few instances of restoration banking suggest approaches to integrating NRDA with other forms of mitigation activities.

¹³⁸ See *id.* at 7 no. 10.

¹³⁹ See *id.* at 4-7 nos. 2 & 8.

¹⁴⁰ *Id.* at 7, no. 8.

¹⁴¹ See *id.* at 7 no. 11.

¹⁴² NOAA’s 2016 Guidance replaced its Feb. 6, 2007 Restoration Banking Preliminary Working Policy. According to NOAA’s 2016 Guidance, “restoration banking” comprises “any arrangement under which natural resource trustees agree to recognize and accept from a settling party restoration credits produced by a third party in lieu of payments of funds by the settling party or promises by the settling party to perform work.” This includes “situations in which trustees directly purchase restoration credits generated by third party projects using funds separately recovered from PRPs.” This may be particularly useful in NRDA cases where there are multiple PRPs and/or where restoration opportunities are limited due to availability of suitable land. NOAA DAMAGE ASSESSMENT, REMEDIATION AND RESTORATION PROGRAM. GUIDANCE FOR RECOGNITION AND USE OF RESTORATION BANKS IN NATURAL RESOURCE DAMAGE ASSESSMENTS 3 (2016).

¹⁴³ 15 C.F.R. § 990.56 (b)(1). The regulations do not explicitly define “restoration project.”

1) Elliott Bay – Bluefield Site 1 and Site 2 Restoration Banks

The overall approach of the Elliott Bay Trustee Council and Bluefield Holdings (a private restoration provider) in Washington State was laid out in detail in the trustee council’s “Natural Resource Restoration and Enhancement Credit Protocol.”¹⁴⁴ This document specified that creation of natural resource damage credits at a designated site (including properties owned by the City of Seattle) “may be one alternative available” to all PRPs to address liabilities for natural resource injuries. The approach recognizes conditional projects collaborated on by the parties and constructed projects, both with calculated NRD Credits (interim and as-built). Methodologies were specified for these determinations. The protocol also provides that Trustees could select NRD credits as a viable settlement alternative for a settling PRP; but in order to be consistent with NRDA regulations also specified that Trustees could make no final determination to accept a project or its associated credits without approval of the U.S. Attorney General, and subject to public comment and court approval (at the discretion of the U.S.). PRPs can save time and difficulty by using the approach structured by the protocol, subject to approval of credits and credit sales by the trustee council.

The Protocol provides for identification of proposed habitat restoration projects jointly by the parties, the good faith determination of the Interim NRD Credit for each such project as designed, and recognition of these by the trustees provided financial assurances are in place. Trustees recognize no more than 50 percent of any interim NRD credit until the project is constructed; on completion of construction, the trustees will determine the “as-built NRD credit” (these may subsequently be adjusted up or down as determined by performance monitoring).¹⁴⁵

The Bluefield – Site 1 restoration bank (Site 1) was established in 2012 under the protocol with oversight by the Elliot Bay Trustee Council. It is sponsored by Bluefield Holdings, Inc. with the purpose of generating and selling restoration credits.¹⁴⁶ The Site 1 project resulted in 1.01 acre of habitat, and serves the Lower Duwamish River Superfund Site.¹⁴⁷ Restoration credits generated by Site 1 are valued using a Habitat Equivalency Assessment (HEA). The HEA calculated the “amount of ecological services lost as a result of contamination, and the amount of ecological services that would be gained from restoration projects, making past and future losses and gains comparable by applying a discounting factor.”¹⁴⁸ Credits are in units of discounted service acre-years (DSAYs).¹⁴⁹ Site 1 habitats were valued by “how well they support juvenile Chinook salmon, four bird assemblages representative of avian species

¹⁴⁴ Elliott Bay Trustee Council, *Natural Resource Restoration and Enhancement Credit Protocol*, (May 2009).

¹⁴⁵ Id.

¹⁴⁶ See BLUEFIELD HOLDINGS, <http://bluefieldholdings.com/> (last visited March 28, 2018).

¹⁴⁷ See *id.*; DAMAGE ASSESSMENT, REMEDIATION, AND RESTORATION PROGRAM, *Lower Duwamish River*, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (June 13, 2017), <https://darrp.noaa.gov/hazardous-waste/lower-duwamish-river>.

¹⁴⁸ See NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, *Final Lower Duwamish River NRDA Restoration Plan and Programmatic Environmental Impact Statement 1*, 28 (June 2013), <https://casedocuments.darrp.noaa.gov/northwest/lowerduwamishriver/pdf/Final%20Duwamish%20River%20NRDA%20PEIS%20and%20Restoration%20Plan.pdf>.

¹⁴⁹ “A DSAY represents the value of all of the ecosystem services provided by one acre of the habitat in one year.” DAMAGE ASSESSMENT, REMEDIATION, AND RESTORATION PROGRAM, *Habitat Equivalency Analysis*, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (June 13, 2017), <https://darrp.noaa.gov/economics/habitat-equivalency-analysis>.

occurring in the area, and juvenile English sole.”¹⁵⁰ A total of 46 restoration credits generated by Site 1 have been sold.¹⁵¹

On September 22, 2016, trustees and the City of Seattle entered into another consent decree covering the City’s liability for NRD not addressed in a prior consent decree. This settlement constitutes an instance where a responsible party purchased restoration credits to resolve its liability for NRD that were financed and constructed by the restoration development company on 2.91 acres (Site 2). Using recovered funds, the Trustee Council will purchase 30 discounted service acre-year credits for \$3 million from Bluefield Holdings.¹⁵² The Trustee Council consists of NOAA, DOI (represented by FWS), Washington Department of Ecology, Washington Department of Natural Resources, Washington Department of Fish and Wildlife, and the Muckleshoot and Suquamish Tribes.

The Elliott Bay Trustee Council completed an environmental review for the credit purchase; the environmental assessment resulted in a FONSI.¹⁵³ As described in the Environmental Assessment, “Site 2 is a NRDA restoration bank project that Bluefield will build with the intent to sell the balance of the restoration credits to potentially responsible parties (PRPs) for the PRPs to use to resolve their liability for injury to natural resources in the Lower Duwamish.” The Site 2 project is projected to generate 112 credits, of which 30 are already sold.¹⁵⁴

2) Portland Harbor –Alder Creek Restoration Project and Other Activities(Linnton Mill Site)

The Alder Creek Restoration Project (Alder Creek) was established by Wildlands, Inc. with the purpose of offsetting NRD liability resulting from past industrial use along the Willamette River in Portland, Oregon.¹⁵⁵ The Portland Harbor Natural Resources Trustee Council provided technical assistance and has recognized credits produced by the project. This fifty-two acre project site is intended to provide restoration in the vicinity of the Portland Harbor Superfund Site.¹⁵⁶ The Alder Creek project was

¹⁵⁰ See NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, *Final Lower Duwamish River NRDA Restoration Plan and Programmatic Environmental Impact Statement* 1 app. d at 1 (June 2013), <https://casedocuments.darrp.noaa.gov/northwest/lowerduwamishriver/pdf/Appendix%20D%20Habitat%20Valuation%20in%20the%20Lower%20Duwamish%20River.pdf>.

¹⁵¹ See BLUEFIELD HOLDINGS, <http://bluefieldholdings.com/> (last visited March 28, 2018).

¹⁵² Elliot Bay Trustee Council Lower Duwamish River Resolution 2017-01, https://casedocuments.darrp.noaa.gov/northwest/lowerduwamishriver/pdf/EBTC_resolution_2017_01%20signed.pdf

¹⁵³ BRIAN D. ISRAEL. ARNOLD & PORTER KAYE SCHOLER LLP. STATE-BY-STATE GUIDE TO NRD PROGRAMS IN ALL 50 STATES AND PUERTO RICO (2017); see also NOAA. ENVIRONMENTAL ASSESSMENT FOR THE BLUEFIELD HOLDINGS, INC. SITE 2 SHORELINE RESTORATION PROJECT CREDITS PURCHASE (2016) available at https://casedocuments.darrp.noaa.gov/northwest/lowerduwamishriver/pdf/Public_Draft_EA_Purchasing_Credits_in_Site_%20.pdf.

¹⁵⁴ <http://bluefieldholdings.com/> (visited Dec. 28, 2017).

¹⁵⁵ See *Alder Creek Restoration Project*, WILDLANDS INC. (June 13, 2017), http://www.wildlandsinc.com/pacific_nw/alder-creek-restoration-project/.

¹⁵⁶ See Office of Response and Restoration, *Restoration along Oregon’s Willamette River Opens up New Opportunities for Business and Wildlife*, National Oceanic and Atmospheric Administration (June 13, 2017), <http://response.restoration.noaa.gov/about/media/restoration-along-oregons-willamette-river-opens-new-opportunities-business-and-wildlife>.

implemented at a site formerly occupied by a lumber mill. The Portland Harbor Natural Resource Trustee Council and PRPs may purchase credits from The Alder Creek Restoration Project.¹⁵⁷ Restoration credits generated by Alder Creek were calculated using a HEA and are in Discounted Service Acre-Year (DSAY) units.¹⁵⁸ The initial credit release was approved in 2015. At least thirty-five credits have been purchased for \$75,000 per credit.¹⁵⁹

The trustees have developed a form of “Memorandum of Agreement” to provide technical assistance in appropriate circumstances to develop restoration projects that may be “potentially usable” by PRPs to offset some or all of their NRD liabilities.¹⁶⁰ It provides for reimbursement of trustee costs by the developer, and for the Trustees to determine forecast and final settlement credits values for “covered projects.”

The trustees are also providing technical assistance to a proposed NRD restoration bank at the Linnton Mill Site. This project is being developed by RestorCap.¹⁶¹ This project is seeking to operate as a dual-purpose bank so that its credits can be used for NRD liability and credits can be sold alternatively as 404/10 compensatory mitigation credits; the latter use is described as the “secondary purpose” of the project. The developer has applied to the Corps of Engineers (and Oregon Department of State Lands) for approval of its prospectus to operate as a stream and wetland mitigation bank under the 2008 Mitigation Rule.¹⁶²

The final Portland Harbor Programmatic Environmental Impact Statement and Restoration Plan, released May 2017, explicitly recognizes “purchase of restoration credits from a restoration bank” as among the approaches that may be used to address liability. The PEIS says “Under this approach, a PRP purchases restoration credits from a restoration project implemented by another entity that has previously undergone suitability review by the Trustee Council.” In order for a restoration bank to be considered by the Trustee Council, the Council must evaluate whether:

- the project meets OPA/CERCLA suitability criteria;
- the project is consistent with the restoration objectives and priorities outlined in the Portland Harbor restoration plan; and

¹⁵⁷ Portland Harbor Natural Resource Trustee Council,

<https://www.fws.gov/oregonfwo/Contaminants/PortlandHarbor/> (visited Nov. 13, 2017).

¹⁵⁸ See Portland Harbor Natural Resource Trustee Council, *Ecological Restoration Portfolio 1, 2, 7* (2012), https://www.fws.gov/oregonfwo/Contaminants/PortlandHarbor/Documents/RestorationPort_AppA.pdf.

¹⁵⁹ See Agreement for Purchase and Sale of Discounted Service Acre-Year Credits and Escrow Instructions between Portland Harbor Holdings II, LLC. and the City of Portland (on file with the Portland Auditor’s Office), <http://efiles.portlandoregon.gov/Record/7102810>; Purchase agreement approved by the Portland City Council in 2014. See ENVIRONMENTAL SERVICES, *What We’ve Done in Portland Harbor*, CITY OF PORTLAND (June 13, 2017), <https://www.portlandoregon.gov/bes/article/565102>.

¹⁶⁰ <https://www.fws.gov/oregonfwo/Contaminants/PortlandHarbor/Documents/DeveloperMOATemplate07-30-13.pdf> (last visited March 28, 2018).

¹⁶¹ <http://www.restorcap.net/portland-harbor/> (last visited March 28, 2018).

¹⁶² USACE, ODSL, Joint Public Notice: Linnton Mill Restoration Site Mitigation Bank, Multnomah County, Oregon (Dec. 28, 2016), http://www.nwp.usace.army.mil/Portals/24/docs/regulatory/publicnotices/NWP-2014-477_PN.pdf

- the project developer has offered sufficient long-term protection “to ensure that the project will provide restoration benefits in perpetuity.”¹⁶³

The Trustee Council announced a pause in its support for additional third party restoration projects in order to focus its efforts, and the need to encourage a balance between NRD restoration credit supply and potential demand. Current projects continue, and have the following elements in place: “1) a site-specific MOA between the Trustee Council and restoration proponent in place, 2) a conceptual design for the restoration project received by Trustee Council, and 3) a project-specific scope of work and budget developed by the Trustee Council and restoration proponent providing for Trustee Council technical assistance for the design of the restoration project.”¹⁶⁴

3) Louisiana NRDA Banking

Louisiana established a Natural Resource Damage Banking Program in July 2017 to incentive private investors to undertake restoration projects and generate restoration credits PRPs could purchase to resolve liabilities under both OPA and the Louisiana Oil Spill Prevention and Response Act of 1991.¹⁶⁵

NRD restoration banks must be consistent with the Louisiana Coastal Master Plan. Banks that are increments, add-ons, or enhancements of Master Plan projects are given preference. The recently adopted regulations¹⁶⁶ instruct the Coastal Protection and Restoration Authority (CPRA) to convene a Banking Review Team (BRT)¹⁶⁷ to facilitate and oversee the NRD Restoration Banking Program. This structure is evidently modeled on the IRT used in the §404 program for approval of compensatory mitigation banks and ILFs. The BRT functions include determining the eligibility of a proposed bank, establishing restoration release credits, and monitoring the operation of the NRD restoration banks. The cost of NRD credits will be negotiated by the responsible party and the restoration bank sponsor. The process of bank approval includes submittal and review by the BRT of a bank prospectus, preparation of a restoration bank plan subject to public review and comment and adoption as a final plan, the preparation of a restoration banking instrument (including plan, legal requirements, financial guarantees), which will be made available to the public.¹⁶⁸ Existing “already-constructed” restoration projects that are in use as a bank pursuant to another regulatory scheme (such as the Clean Water Act, or conservation banking) are allowed but must provide information on actual bank performance, as well as detailed information on remaining available credits, and include means to prevent double-counting of

¹⁶³ NOAA, Final Portland Harbor Programmatic EIS and Restoration Plan (May 2017), volume 1, at 7-15. https://www.fws.gov/oregonfwo/Contaminants/PortlandHarbor/Documents/201706_FINAL_PEIS.pdf (last visited March 28, 2018).

¹⁶⁴ <https://www.fws.gov/oregonfwo/Contaminants/PortlandHarbor/Documents/Restoration%20Message.pdf> (last visited March 28, 2018). Third-party developers may continue at their own risk; and PRPs currently working collaboratively with the Trustee Council for settlement of their liabilities are not affected by the pause.

¹⁶⁵ Authorized by 2016 La. Act 362; 43 La. Reg. 1354 (July 2017).

¹⁶⁶ 43 LAC §§ 115-119.

¹⁶⁷ The BRT includes the state trustee agencies and is chaired by the Coastal Protection and Restoration Authority. The BRT may consult or invite other state or federal agencies, including federal NRDA trustees, as appropriate for review and certification of specific NRDA banks.

¹⁶⁸ 43 LAC §§ 115-119.

credits and credit use.¹⁶⁹ Bank restoration credits are anticipated to be measured in acres, reflecting “habitat type and minimum performance criteria.” However, the BRT may consider other units of credit on a case-by-case basis.¹⁷⁰

The terms of release of credits are finalized after review of public comment on the restoration plan, and must be clearly stated in the final banking instrument. Advance credit sale may include no more than 20 percent of bank credits. All credit sales must be approved by the BRT.

It is not currently clear whether and to what extent federal trustees will recognize or use Louisiana-approved restoration banks; however, the detailed regulations and review processes are generally congruent with federal guidance – while open to broader use of banks and to previously-generated compensatory mitigation or restoration credits.¹⁷¹

Current references to NRDA activities in state and tribal wetlands plans

There are not a great many references to NRDA and NRDA banking in existing state and tribal wetlands programs. The US EPA promotes the development of wetland program plans by states and tribes in order to advance performance in four “core” elements of such programs:

- monitoring and assessment,
- regulation,
- voluntary restoration and protection, and
- water quality standards.¹⁷²

According to EPA, wetland program plans are “voluntary plans developed and implemented by state agencies and tribes which articulate what these entities want to accomplish with their wetland programs over time. [These plans] describe overall program goals along with broad-based actions and more specific activities that will help achieve the goals.” We examined the plans on EPA’s website to identify information in the plans that support coordination with NRD issues.

Three wetland program plans include elements specifically related to integration of wetland activities with NRDA processes: Idaho, New Jersey, and St. Regis Mohawk.¹⁷³ The New Jersey plan notes that:

Natural Resource Restoration is administered by the NJDEP’s Office of Natural Resource Restoration, which was established in the 1990’s to restore for environmental injury caused by multiple oil spills and discharges....Examples of recent and on-going wetlands restoration, creation and enhancement efforts by the NJDEP Office of Natural Resource Restoration include the removal of landfill material and

¹⁶⁹ 43 LAC § 115C.

¹⁷⁰ 43 LAC § 121.

¹⁷¹ The Water Infrastructure Improvements for the Nation (WIIN) Act, Pub. L. 114-322 (Dec. 16, 2016), authorizes “environmental banks” in Louisiana, with siting criteria, financial assurances, legally enforceable protections, to be use “to satisfy existing liability under Federal environmental laws.” Id. § 309(b),(c).

¹⁷² U.S. EPA, Developing a Wetland Program Plan, <https://www.epa.gov/wetlands/developing-wetland-program-plan> (visited Jan. 4, 2018); U.S. EPA, State and Tribal Wetland Program Plans, <https://www.epa.gov/wetlands/state-and-tribal-wetland-program-plans#r1>(visited Jan. 4, 2018).

¹⁷³ Id. All quotations are from the plans linked on the EPA website.

recreation of a salt marsh in Hudson County, dam removals that have the effect of increasing water quality and wetlands quality along the Raritan River, and stream restoration work.

Idaho's plan says that it will "form strong working relationships with all stakeholders to develop, fund, and implement riparian and wetland management (e.g., agricultural practices), protection, and restoration / remediation plans for watersheds (e.g., Hecla Settlement Restoration Partnership in Coeur d'Alene River basin where future conservation work is guided by the Partnership and the CDA Basin Natural Resource Restoration Plan) " It will "identify, evaluate, remediate, and restore wetlands in the Lower Coeur d'Alene River Basin contaminated by metals for the purpose of reducing waterfowl mortality and improving wetland condition" including a plan to "submit wetland remediation and restoration project proposals to EPA and the Natural Resources Trustees for funding."

The St. Regis Mohawk tribe in New York along the St. Lawrence is deeply involved in NRDA restoration activities. Its wetlands program plan¹⁷⁴ specifically references integration of wetlands activities with these restoration measures under its Objective #1: "Clearly and consistently define restoration and protection goals throughout tribal territory." The action items for this objective:

Action (a): Establish goals that are consistent or compatible across relevant agencies (e.g. NRDA/ACR).¹⁷⁵

- Coordinate with relevant agencies that outline restoration/protection goals and strategies and timeframes.
- Develop multi-agency body to coordinate restoration/protection efforts.
- Gather information on wetland location, class, and condition/functions.
- Set restoration goals based on agency objectives and available information.

Action (b): Consider watershed planning, wildlife habitat, and other objectives when selecting restoration/protection sites.

- Identify rare, vulnerable, or important wetlands and prioritize for restoration/protection.
- Apply tools (GIS, color-infrared photography, mapping, modeling, field inspection of soil, vegetation, and hydrologic conditions) to identify and prioritize restorable wetlands.
- Integrate restoration/protection efforts on a watershed or landscape scale (e.g., prioritize restoration sites within a watershed).
- Share priorities with other organizations involved in wetland protection and restoration (e.g., wildlife bureaus, agriculture/conservation agencies, land trusts, and mitigation banks).
- Share priorities with other water quality protection programs (e.g., identify riparian restoration projects that would reduce sediment and nutrient loadings to streams and implement TMDLs).

Action (c): Provide clear guidance on appropriate restoration and management techniques and success measures.

¹⁷⁴ https://www.epa.gov/sites/production/files/2016-03/documents/srmt_wetland_program_plan-final.pdf.

¹⁷⁵ ACR is the Akwesasne Cultural Restoration Program, which is a component of the settlement of NRDA claims arising out the contamination of the St. Lawrence River and the loss of culturally important resources and activities for the tribe and its members resulting from the contamination.

- Develop restoration and management guidance specific to wetland types and location (e.g., urban vs. rural).
- Establish measures of restoration success (e.g., adopt functional and/or condition indicators and field methods).
- Establish performance standards based on reference wetland sites in a relatively undisturbed condition.
- Through guidance, encourage restoration outcomes that recreate natural self-sustaining systems and reduce the need for ongoing management.
- Verify restoration techniques with site visits and adapt as necessary.
- Train restoration partners to use guidance techniques.

Several other state or tribally-administered wetland program plans make reference to NRDA activities. The Confederated Tribes of the Colville Reservation's plan states: "In the future, it is anticipated that the monitoring data may support the associated Upper Columbia Site natural resource damage assessment (NRDA) and CERCLA remedial investigation and feasibility study." Missouri's state wetland plan merely notes: "MDNR supports Natural Resource Damages (NRD) wetland restoration activities."

Other states have used information developed by wetland programs to inform NRDA activities. However, formal wetland program planning documents show little current integration of these programs from the wetlands side.

CHALLENGES TO INTEGRATING COMPENSATORY MITIGATION UNDER OTHER PROGRAMS WITH NRDA

NRD recoveries may be used only to restore, rehabilitate, replace, or acquire the equivalent of the injured natural resources.¹⁷⁶ *Restoration* or *rehabilitation* actions return injured resources to their baseline conditions, as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided.¹⁷⁷ *Replacement* or *acquisition of the equivalent* substitutes the injured resources with resources that provide the same or substantially similar services.¹⁷⁸ Damages also include, at the trustees' discretion, the compensable value of all or a portion of the *services lost to the public in the interim*, as well as assessment costs.

NRDA trustees face at least six potential challenges to using credits generated by 404 mitigation banks, ILFs, and conservation banks to meet Natural Resource Damages claims. These include:

- Proving a sufficient nexus between the advance restoration project and specific injuries;
- Meeting procedural requirements;
- Justifying restoration bank credits as the preferred alternative;
- Responding to public comment;
- Timing; and
- Ensuring long-term monitoring and maintenance.

Prove nexus between advance restoration project and specific NRD injuries

Trustees must demonstrate a “nexus” between an advance restoration project and the particular injury to resources and services caused by hazardous substance release or oil discharge.

Trustees are charged with developing restoration projects that provide “the same or comparable natural resources and services as those identified as having been injured.”¹⁷⁹ The scope of the restoration project must address both the type/kind and the scale of ecological services lost. Trustees must be satisfied that the quantity and quality of the restoration received compensates for the injury in question.

This poses a challenge to trustees in determining the value of restoration bank credits, to ensure the number of credits retired is equivalent to the measure of the damages assessed. Trustees take a functional rather than a spatial approach to quantifying ecological losses, based on the loss of services rather than, for example, lost acreage or number of species. OPA regulations prioritize the different

¹⁷⁶ CERCLA §107(f)(1), 42 U.S.C. § 9607(f)(1); OPA § 1006, 33 U.S.C. § 2706(d)(1).

¹⁷⁷ CERCLA 43 C.F.R. § 11.82(b)(i) (1994), 43 C.F.R. § 11.14(II) (1994).

¹⁷⁸ CERCLA 43 C.F.R. § 11.82(b)(ii)(1994), 43 C.F.R. § 11.14(a) (1994).

¹⁷⁹ OPA 15 C.F.R. § 990.56(b)(iii).

approaches to determining the scale of restoration actions, based on what type of restoration actions are feasible.¹⁸⁰

Both DOI and NOAA have considered how trustees for a particular case can determine how available advance restoration credits will be valued and applied to offset NRDAR liability. DOI suggests trustees enter into prospective agreements with third party restoration bank developers to determine how advance restoration credits will be valued and applied to offset NRDAR liability for a particular case.¹⁸¹ NOAA, which has experience in making this determination, discusses scaling natural resource damage liability in some form of ecological currency, such as discounted ecological service acre-years, using methodologies like habitat equivalency analysis (HEA).¹⁸² Ideally, trustees will settle on valuation early in the process, by taking the formal steps of both recognition and acceptance of the restoration bank and the nature and value of the credits it produces.¹⁸³ *Ex ante* recognition is typically granted through an agreement between the trustees and the bank developer. *Ex post* acceptance may occur when the trustees and the PRPs enter into a settlement agreement under which the trustees accept and retire a specified number of credits in return for granting a covenant not to sue. However, NOAA expressly will not recognize credits generated before the *later* of the injury or the agreement.

Under the §404 Compensatory Mitigation Rule for mitigation banks and ILFs, the credits are defined at the time of approval of the instruments authorizing the programs. Conservation bank credits are also defined in the banking agreement (and the underlying HCP in many instances). This is done with understanding of the kinds of impacts (to particular aquatic resource types, or species habitats) that will be offset by the credits. There is then a subsequent regulatory approval of the credit release and sale to meet compensatory mitigation obligations. For NRDA, the range of potential injured resources may be wider, but in appropriate settings can be just as predictable (at least for some resources), which can facilitate credit definition or recognition of credits approved by these other programs.

In general, credits are defined for §404 compensatory mitigation in terms of acres of specific aquatic resource types, with issues of condition and temporal replacement dealt with by setting different compensation ratios based on the activity used to generate the compensatory mitigation (e.g., higher ratios generally required for enhancement, preservation), on the impact, and on the timing of credit

¹⁸⁰ OPA 15 C.F.R. § 990.53(d)(2),(3). The first priority is to provide natural resources/services of the same type and quality, and requires using a resource-to-resource or service-to-service scaling approach. When these approaches are inappropriate, trustees may then use the valuation scaling approach to determine the natural resources and/or services that must be provided to produce the same value lost to the public. If the valuation approach is not reasonable under the circumstances, trustees may estimate the dollar value of the lost services and select the scale of the restoration action that has a cost equivalent to the lost value.

¹⁸¹ DOI MEMORANDUM. DOI NRDAR GUIDANCE FOR PRESIDENTIAL MEMORANDUM ON MITIGATING IMPACTS ON NATURAL RESOURCES FROM DEVELOPMENT AND ENCOURAGING RELATED PRIVATE INVESTMENT 8 (2016).

¹⁸² NOAA DAMAGE ASSESSMENT, REMEDIATION AND RESTORATION PROGRAM. GUIDANCE FOR RECOGNITION AND USE OF RESTORATION BANKS IN NATURAL RESOURCE DAMAGE ASSESSMENTS 3 (2016).

¹⁸³ Recognition and acceptance can be identified prior to an incident, where the trustees in an area enter into an agreement with a bank. This can occur in locations where future, similar, incidents can be expected. NOAA DAMAGE ASSESSMENT, REMEDIATION AND RESTORATION PROGRAM. GUIDANCE FOR RECOGNITION AND USE OF RESTORATION BANKS IN NATURAL RESOURCE DAMAGE ASSESSMENTS (2016), Appendix E (scenario 2).

usage. However, the unit of measure under the Compensatory Mitigation Rule is generally described as a “functional” measure, representing the accrual or attainment of aquatic functions at a compensatory mitigation site.¹⁸⁴ Conservation banking often uses some form of functional methodology, but the FWS recognizes that various methods may be used, and the units are often expressed as “a measure of surface area (e.g., an acre or hectare), linear distance of constant width (e.g., stream miles), number of individuals or mating pairs of a particular species, habitat function (e.g., habitat suitability index), or other appropriate metric.”¹⁸⁵

In the NRDA setting, recognition and acceptance of restoration credits relies on a number of techniques, but the key is a functional assessment (often using HEA), and then expressed as DSAYs in order to account for interim losses and timing issues relating to when the restoration occurs relative to the injury.¹⁸⁶ The NOAA guidance specifies that trustees must “scale natural resource liability in some form of ecological currency” such as DSAYs.¹⁸⁷ While both of these approaches to measurement are at bottom based on functional assessment methods, they are not the same. Trustees will need to determine how to assess credits generated under these other systems and may need to re-assess them (or assess them prospectively where they will be generated after agreement with trustees, as NOAA requires).

In addition, NOAA has an approach using “forecast settlement credits value” at the time of providing technical assistance to a restoration (project/bank), with readjustment to “final settlement credits value” at the time credits are accepted in settlement of a party’s liability claim.¹⁸⁸ This is analogous to the 404 process of “credit release” upon the meeting of milestones in the 404 banking or ILF instrument. However, the 404 process occurs irrespective of a compensation transaction. The NRDA approach seems to create more risk for the developer that credits may not have the value anticipated; however, it also contemplates the possibility of an upward adjustment if the project produces more value.

Use of credits for NRD liability that are generated by an operating 404 mitigation bank or ILF will likely require engagement by the trustees and the bank or ILF with the IRT and the Corps district. These latter agencies may have concerns about the likely future inventory of credits potentially available for 404 purposes in their watersheds; they are responsible for overseeing credit ledgers. Similar concerns may arise with conservation banks, involving FWS or state authorities.

Meet procedural requirements under other environmental statutory regimes

NRDA restoration banks are sponsored by private third parties, but the decision of trustees to recognize and retire restoration bank credits as a NRDA decision constitutes government agency action.

¹⁸⁴ 33 C.F.R. § 320.2, 40 C.F.R. § 230.92. The FWS uses a similar definition in its ESA Compensatory Mitigation Policy, Appendix B (“accrual or attainment of ecological functions and/or services for a species at a mitigation site”).

¹⁸⁵ FWS, ESA Compensatory Mitigation Policy, at 6.4 (2016).

¹⁸⁶ Jones and DiPinto (2018), *supra*.

¹⁸⁷ NOAA Damage Assessment, Remediation and Restoration Program. Guidance for Recognition and Use of Restoration Banks in Natural Resource Damage Assessments 3 (2016).

¹⁸⁸ NOAA, Memorandum of Agreement Between the Natural Resource Trustees and [Developer] for Providing Technical Assistance Related to Habitat Restoration Projects Toward Future Settlement of Natural Resource Damages at the Portland Harbor Site.

Acceptance of restoration bank credits to meet NRD liability must be completed in compliance with other applicable environmental statutes.

The most significant is the National Environmental Policy Act (NEPA) and state NEPA-equivalent laws. Trustees must ensure compliance with any applicable consultation, permitting, or review requirements, including but not limited to the Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Coastal Zone Management Act (CZMA), National Marine Sanctuaries Act (NMSA), the Marine Mammal Protection Act (MMPA), and the Archaeological Resources Protection Act (ARPA).¹⁸⁹

OPA regulations provide detailed guidance on integrating NRDA with NEPA and its associated regulations.¹⁹⁰ The regulations note that federal trustees can tier their NEPA analysis for existing restoration projects to an existing environmental impact statement.¹⁹¹ CERCLA regulations provide no explicit instructions.

The decision to accept credits in satisfaction of NRD liability is analyzed among the “alternatives” considered in the EA or EIS for the NRD decision. Thus, if an existing mitigation bank, ILF, or conservation bank may be used to meet NRD liabilities, it is highly desirable to have an agreement with the trustees in place. If it is a proposed bank or ILF, the prospectus and terms of instrument should be outlined in the NEPA documents as well. Similarly, reference to use of “watershed plans,” including those used in the “watershed approach” by the Corps of Engineers in addressing locally-relevant § 404 compensatory mitigation decisions (or establishing the service areas of banks and ILFs), can be referenced in the NRDA NEPA documents.

Justifying restoration bank credits as the preferred alternative

Trustees must evaluate a reasonable number of possible alternatives to restoration in their Restoration and Compensation Determination Plan (CERCLA) or Draft Restoration Plan (OPA), and select an alternative or alternatives.¹⁹² Trustees must therefore evaluate a non-advance-restoration option as part of their alternatives analysis; however, restoration banks (and 404 banks, ILFs, and conservation banks) may also be in a position to provide credits generated after the injury.

The range of alternatives covers the spectrum from zero-action “natural recovery” to intensive action focused on returning the natural resources and services to baseline conditions on an accelerated timeframe.¹⁹³ Restoration banks may fall toward the more intensive action end of the spectrum of alternatives under consideration. At the same time, they also may be an important component of addressing the “compensatory” or “interim” loss dimension of a NRDA claim even if onsite activities do not involve a great deal of intervention.

Trustees evaluate each alternative against several factors. The 10 factors prescribed by CERCLA include: technical feasibility, the relationship of the expected costs of the proposed actions to the expected

¹⁸⁹ 15 C.F.R. § 990.24(b).

¹⁹⁰ 15 C.F.R. § 990.23.

¹⁹¹ *Id.*

¹⁹² CERCLA, 43 C.F.R. § 11.81; OPA, 15 C.F.R. § 990.53(a)(2).

¹⁹³ 43 C.F.R. § 11.82(c), 15 C.F.R. § 990.53(b)(3).

benefits, and cost-effectiveness.¹⁹⁴ The six criteria prescribed by OPA include: cost to carry out the alternative and the extent to which each alternative is expected to meet the trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses.¹⁹⁵

The regulations do not specify a preference among the categories of action: restoration, rehabilitation, replacement, or acquisition of the equivalent resources. However, the legislative history associated with OPA indicates Congress listed the four in order of preference. The House Conference Report states: "The alternative of acquiring equivalent resources should be chosen only when the other alternatives are not possible, or when the cost of those alternatives would, in the judgment of the trustee, be grossly disproportionate to the value of the resources involved."¹⁹⁶ The OPA regulations themselves state that incident-specific restoration plan development is preferred,¹⁹⁷ and that trustees may consider using an existing restoration project *when it is determined to be the preferred alternative*.¹⁹⁸

Responding to public comment

Trustees must provide the public with an opportunity to review and comment on various stages during the NRDA process. Under the DOI CERCLA regulations, trustees are required to provide opportunities for public review on:

- the Assessment Plan,
- the Restoration and Compensation Determination Plan,
- the Restoration Plan, and on
- significant modifications to the Restoration Plan

Under NOAA OPA regulation, trustees are required to provide opportunities for public review on::

- the Notice of Intent to Conduct Restoration Planning,
- the Draft Restoration Plan.¹⁹⁹

Public comment opportunities are coordinate with public comment required under NEPA. Particularly important are the requirements that the trustees seek public comment on the alternatives. Trustees must include responses to comments in their final restoration plans.²⁰⁰

Public comments introducing substantive objections to meeting NRD goals with restoration bank credits could redirect the trustee to selecting another alternative. Current approaches to NRDA restoration

¹⁹⁴ 43 C.F.R. § 11.82(d).

¹⁹⁵ 15 C.F.R. § 990.54.

¹⁹⁶ H.R. REP. NO. 101-653 at 108, *reprinted in* 1990 U.S.C.A.N. 779, 786-787 (1990).

¹⁹⁷ 15 C.F.R. § 990.15(b).

¹⁹⁸ 15 C.F.R. § 990.56(a).

¹⁹⁹ DOI NRDAR Primer.

²⁰⁰ CERCLA, 43 C.F.R. § 11.81(d)(2)-(4); OPA, 15 C.F.R. § 990.55(c).

banking preserve the public participation opportunity. But trustees in their interactions with the public should address the potential for using a restoration bank (or a trustee memorandum of agreement that contemplates using a bank) early in the process, particularly if state or tribal trustees contemplate using proposed or existing banks or ILFs for future spills and releases.

If a natural resource damage process is being conducted by a state entirely under state laws, its own public comment procedures will need to be followed and coordinated.

Both the Compensatory Mitigation Rule and Conservation Banking Interim Guidance provide for opportunity for public comment on proposed instruments.²⁰¹

Timing

Timing presents a great many challenges to use of 404 mechanisms and conservation banking mechanisms in the NRDA context – mostly arising out of the issues discussed above. The NRDA process is focused throughout on restoration of services and resources to baseline, and compensation for interim losses (temporary or permanent) to achievement of baseline. This means that trustees may be reluctant to accept credits (restoration activities), before the full Damage Assessment process has run its course. And because the current best practice by NOAA and DOI is to base the claim on the restoration plan, and because the plan requires evaluation of alternatives, it can be difficult for trustees to accept a great many credits by way of settlement, except in an “advance” restoration agreement context where it is understood that there will be additional future liability determinations.

Nevertheless, it should be possible for state and tribal trustees to identify early on whether certain approaches to restoration (including existing 404 and conservation bank mechanisms) might be acceptable in certain geographic areas for known resources – e.g. salmon habitat, listed species habitat, specific wetland types. This may facilitate the entering into of agreements (involving all the trustees) to approach at least this component of restoration in a timely way.

Ensure long-term monitoring and maintenance

Trustees must ensure long-term stewardship over and monitoring of restoration projects implemented under CERCLA and OPA. NOAA and DOI recommend taking specific steps to ensure that the restoration project is completed and monitored so as to fully compensate for injured resources. One protective option is a permanent easement.²⁰² Another is to include, in agreements with restoration banks, provisions for implementing and funding long-term stewardship of the site, and explicitly defining trustee control and oversight. Louisiana’s Natural Resource Damage Banking Program requires restoration bank sponsors provide financial assurance to cover construction and long-term operation, monitoring, and maintenance. Financial assurance may be in the form of a trust fund, letter of credit, or a surety bond.

²⁰¹ 33 C.F.R. § 332.8(d)(4), 40 C.F.R. § 230.98(d)(4).

²⁰² NOAA DAMAGE ASSESSMENT, REMEDIATION AND RESTORATION PROGRAM. GUIDANCE FOR RECOGNITION AND USE OF RESTORATION BANKS IN NATURAL RESOURCE DAMAGE ASSESSMENTS 5 (2016).

Both the requirements of the Corps-EPA Compensatory Mitigation Rule and the FWS Guidelines for Conservation Banks cover all of these elements in detail. So it should be relatively straightforward for trustees to approve restoration banks operating under these regimes.

Summary

State and tribal trustees have incentives to adhere to the NRDA regulations, due to the rebuttable presumption both CERCLA and OPA grant them.²⁰³ As members of trustee councils, they must reach agreements on approaches to NRDA that can meet their needs efficiently as well as address obligations they have for stewardship of the environment. Most of the challenges can be readily overcome. However, the credit valuation issue, and timing issues related to trustees' use of previously generated credits (not allowed by NOAA guidance) pose some complexities.

Trustees should consider how best to provide opportunity for public comment if they are considering recognition of 404 mitigation or conservation banks or ILFs for later satisfaction of NRD liability. The proper design of an approach that taking public issues into account when endorsing a potential restoration banking scheme will improve the likelihood that appropriate kinds of credits will be generated, and that providers will have enough confidence in a future market to justify expenses in site acquisition, planning, and restoration activities. Trustees must still, at the appropriate time, justify selecting restoration bank credits among possible alternatives, and respond to public comments on that selection.

²⁰³ CERCLA §107(f)(2)(C), 42 U.S.C. § 9607(f)(2)(C); OPA §1006(e)(2), 33 U.S.C. § 2706(e)(2).

EXPERT FEEDBACK ON NRDA/WATERSHED APPROACH INTEGRATION

The research team interviewed knowledgeable participants in the NRDA process to gain insight into advantages and obstacles related to integrating NRDA and the Clean Water Act §404 watershed approach to compensatory mitigation. These included federal trustees, state trustees and state NRDA programs, tribal trustees, consultants, law firms, and mitigation/restoration providers. Observations are reported without attribution to individual respondents.

Advantages of Integration

Respondents observed that integrating 404 banking and ILF programs and the watershed approach with the NRDA process offers three potential advantages:

1. It may reduce the time period until active restoration occurs.
2. Integration provides for potential efficiencies in evaluating ecosystem services, identifying restoration options, and implementing needed actions.
3. The coordination may produce a more regionally-oriented outcome by identifying sites that can serve multiple ecosystem goals in a regional context.

Related to the first two of these observations, in certain instances the willingness of potentially responsible parties to enter into settlements might be expedited, chiefly because the existence of known restoration activities and costs would create greater certainty for PRPs.²⁰⁴

Some respondents suggested that based on state “small spill” experiences, the option of a PRP to pay money toward an aggregation account with a plan for restoration may lead to rapid recoveries in instances where full-scale NRDA processes would be too costly or time-consuming and where a likely one-time restoration action by itself might not generate much ecological value.

Issues for Restoration Providers

Bankers and restoration providers emphasize the difficulty of achieving a predictable, timely Return on Investment (ROI) in most hypothetical NRDA banking situations. Unlike 404 banking and conservation banking in which a reasonable credit demand per year can be projected, NRDA cases often involve single incidents with lengthy time periods before restoration alternatives are assessed, let alone approved by all the potential trustees.

The risk of ultimately having no market for credit-generating activities – or having such demand deferred for periods of many years – makes this an unattractive investment opportunity in many settings. Up-front investments in activities that will not generate any return for years is not competitive with other forms of ecosystem banking and ecological service activities. While ILF programs do not have

²⁰⁴ See also Nate Senstrom, *The “Restoration Up-Front” Approach to Satisfying Natural Resource Damage Claims: An Analysis of the Elliott Bay Trustee Council’s Up-front Protocol* (2011). (citing economies of scale, speeded process, predictable timeline, existing settlement structure available to PRPs, and efficiency).

exactly the same concerns, their ability to participate at an early stage is also constrained by the lack of funds to support planning and related activities.

One provider noted that NRDA banking is unattractive because it is too hard to raise capital with such a speculative ROI proposition; the risk is fairly high even with a well-sited NRDA bank with appropriate credits, that a trustee council may not approve their use or a PRP may not agree to utilize the credits as a way to satisfy a liability.²⁰⁵

Section 404 compensatory mitigation is subject to fairly straightforward approval processes. Although it involves typically one federal agency (the Corps) and a state agency where it has regulatory authority, the use of a 404 mitigation bank or ILF also involves interactions with an IRT. The IRT, however, will have already approved the instrument, credit calculations, and other requirements, with the Corps making the final decision. In contrast, NRDA trustee councils include multiple actors often with competing (or even inconsistent) objectives. Many of these have very different determinants in terms of their tolerance for delay, preferences for restoration activities and particular resources, and their desire to support or conduct tailored scientific assessment activities.

A restoration provider observed that where there is an existing NRDA process because of a release, there is also the risk of entering the market too late. The PRPs may already be negotiating with different kinds of expectations as to the outcome.

A corollary to these observations is that providers that already have investments in ongoing 404 and conservation banks for purposes of meeting foreseeable regulatory demand for credits, would like to have the opportunity to sell excess or additional credits into the NRDA market where appropriate. This treats potential NRDA demand as an add-on or supplemental income stream rather than as the purpose for establishing a bank.

Several respondents suggested that ILF models may work better than 404 mitigation banks in some circumstances relating to NRDA. Typically ILFs accumulate funds through the sale of advance credits prior to selecting and acquiring sites and undertaking site construction activities. Site selection under a pre-approved compensation planning framework can also *follow* the collection of funds. This framework is intended to assure that a site is appropriate given the ecological and hydrological needs anticipated in the region. This timing difference can change the risk calculation that seriously affects wetland mitigation banks (who have more up-front expenditures, site acquisition, and construction of credits). It can also help overcome the trustees' objections, where these prefer construction of credits only after the natural resource damage event.

The approaches are not entirely analogous, however. Indeed, one respondent contends that ILF compensatory mitigation frameworks aim chiefly at restoration for the most important (or best opportunities) regionally in a watershed related to a particular type of wetland or other aquatic

²⁰⁵ An additional issue is the opposition of various trustees to recognize credits generated in advance of the NRD incident to satisfy NRDA liability. The NOAA guidance document expressly does not allow this, and even some DOI offices and agencies have been reported as not favoring this practice (regarding it as part of the baseline rather than as restoration). Differing viewpoints among trustees can increase the perceived risk to investors in banks.

resource. In contrast, NRDA aims chiefly at restoring the damaged resources in place to the maximum and then determines compensation for interim losses, and again links these as closely as possible to the damaged sites.

The 404 Compensatory Mitigation Rule expresses a hierarchical preference for consideration first of mitigation banks, followed by ILFs, followed by permittee-responsible mitigation. This preference is not consistent with the NRDA approach. However, the NRDA framework does not preclude use of these offsite mechanisms, particularly if considered as *part* of a restoration plan that has multiple components.

A number of public and private respondents suggest that the greatest opportunity might be for non-bank third-party restoration as a worthwhile approach in many settings (either where some advance restoration is being funded by RPs before completion of the NRDA process, or where third-party sites are identified relatively early in collaboration with the trustees. The recent Bluefield Holdings NRDA Restoration Sites in Washington State are close to this model, although operated by a for-profit entity.²⁰⁶ The level of certainty helps overcome the concern otherwise expressed above concerning acceptable risk for investors.

Banking Location

Respondents note that for site management purposes, co-locating NRDA banks with 404 banks, ILF projects, and conservation banks can provide efficiencies and add to ecological function. A number of existing 404 and conservation banks have proposed co-location or adjacency of proposed NRDA banks under these circumstances. One approved tidal wetlands bank in Louisiana advertises that, “Significant portions of the property not currently included in the 404 mitigation bank will be developed as a Natural Resource Damage (NRD) mitigation bank for use as offsets to natural resource damage assessments under the Oil Pollution Act and CERCLA.”²⁰⁷ Another provider in the Pacific Northwest notes the relationship between approved mitigation banks and habitat conservation banks, highlighting the possibility of servicing outstanding NRD claims in specific watersheds in both Oregon and Washington.²⁰⁸ This may be the easiest to bring about if the two types of credits are generated on different parcels, in order to aid in approval and tracking by the regulators and trustees, respectively, while still gaining management efficiencies. A recent prospectus for a wetland mitigation bank in Louisiana proposes the establishment of a 404 mitigation bank on a 517-acre site adjacent to a 230-acre NRDA restoration site established twenty years earlier.²⁰⁹

One respondent notes that co-location may be particularly beneficial in instances where trustees need upland habitats to meet NRD claims. These areas may be owned or maintained by 404 mitigation banks

²⁰⁶ See NOAA, Elliott Bay Trustee Council, and Bluefield Holdings, Inc., Natural Resource Restoration and Enhancement Credit Protocol (May 2009).

²⁰⁷ Ecosystem Investment Partners, Chef Menteur Pass Wetland Mitigation Bank (2016).

²⁰⁸ Wildlands, NRDA and Conservation Banks (2016) (Slide presentation identifying five examples of “NRDA impacts within active and in-process conservation bank service areas” in the Pacific Northwest) https://www.cerc.usgs.gov/nrdar/2009_Wkshp_Docs/Res_Bank/3-White.pdf

²⁰⁹ Prospectus for Hyppolyte Coulee Mitigation Bank, Calcasieu Parish (public notice Oct. 2, 2017).

or ILF programs, but typically receive very little credit in 404 compensation decisions. Thus, a developer may hold, or have access to, upland parcels that contribute ecological value in the overall project, but that can best be marketed as NRD credits.

Credit Definition

Credit definition and approval for NRDA purposes differ substantially from the 404 model. While 404 credits are typically defined by aquatic resource type and counted in fractions of acres or linear feet, the NRDA process often requires a more complex set of evaluations in order to ensure restoration and compensation for interim losses that meet the natural resource damages standards. The adoption of Habitat Equivalency Analysis (HEA) does provide some basis for translation of measurements, but can vary substantially by resource type. And the trustee councils that make the relevant determinations may not function as uniformly as would a single Corps of Engineers district or even an IRT defining compensatory mitigation for prospective providers in the 404 context. This may complicate widespread adoption of 404 banks and ILFs as providers of NRDA restoration – especially in complex environments or impacts to specific species.

There is, however, a closer analogy between multi-species conservation banks and NRDA, as each typically deals with an array of resources and interdependent habitats, resources, and species when defining credit types and valuations. Trustee councils can make these credit determinations. Moreover, there is already some experience integrating 404 banks and ILF programs with conservation banking; the multiple types of credits that are generated and managed suggests that in specific settings these credit definition and valuation approaches can be harmonized.

Placed against these concerns is the strong preference of commercial providers to have a truly multi-resource, multi-value credit that could be sold into numerous types of markets (NRDA, ESA, 404, carbon). These providers embrace uniformity on site management, financial assurance, adaptive management, and mitigation planning, but are uncomfortable with the difficulty and risk of trying to maintain numerous separate product lines that may not find a market. For their part, trustees are very concerned with avoiding double-counting of credits – which is not allowed in either the NRDA guidance documents, nor in Corps of Engineers/EPA compensatory mitigation regulations for 404 mitigation, nor in the FWS conservation banking policy.

Section 404 mitigation banks and ILF programs produce very much an off-the-rack type of credit product designed for use by multiple permittees, while each NRDA process more often generates its own custom-designed restoration product. If the two are to converge, the critical need is a roadmap to how to ensure that NRDA regulations are satisfied, trustee needs are met, and that approval processes are streamlined and clear, while taking advantage of efficiencies and opportunities presented by 404. Otherwise investment is unlikely to occur except as incidental sales opportunities sustained mostly by investment in existing forms of 404 wetland/stream banking and conservation banking.

This credit definition, recognition, and acceptance issue is the most challenging of the technical/regulatory issues for integration of these systems. And it influences, but is not the sole

contributor to, the investment risk calculation – which for mitigation bankers is the most challenging of the financial issues.

States and tribes can simplify these processes if they define what they will accept early and clearly in the NRDA process. Even with these commitments, the process is likely to be very lengthy.

Experiences integrating NRDA processes and other restoration/compensation approaches

Some small spill programs in the states have adopted standardized approaches for determining liability amounts, and then used or considered using the collected amounts for restoration/compensation activities in the same watershed area(s) that are determined in various ways.

Massachusetts is developing a “standard method” for small oil spills, which will become part of a regulatory package. This would be used chiefly for spills that are handled under state NRDA law. The state has not used a restoration banking approach. However, in determining the equivalency amounts for determining the loss and calculating the liability amount, it has drawn on experience of the state wetlands program in determining to what extent constructed wetlands meet the ecological services of destroyed wetlands, and uses dollar figures/acre derived from the ILF program operated by Massachusetts Fish & Game in accordance with the 404 compensatory mitigation rule.

Very few respondents indicated that there was much use made of regional restoration plans in NRDA processes. However, the newly adopted Louisiana NRDA banking regulations require consistency of the proposed banks with “the goals and objectives of the [state’s] coastal master plan.”²¹⁰ Massachusetts notes that on several occasions, the relationship has operated in the opposite direction, with proposed responsive NRDA restoration projects (identified by the NRDA program) being co-opted by other state programs as targets for 404 permittee-responsible compensatory mitigation projects (making them unusable as NRDA projects).

In the California small spill program, the collected funds go into a small spills habitat account, targeted to the county of the damages; funds are then pooled and used for habitat restoration needs (e.g. salmonid and fish passage activities). California notes that in many cases, damages are in urban environments where restoration opportunities and available land areas present few options; it can be helpful if there are ongoing restoration targets that can use the funding. Habitat Conservation Plans in California can help identify suitable projects in some instances.

Oil spills may be better candidates for banking approaches according to one federal respondent. Injuries are often more standardized than chemical/hazardous substance releases, and in many instances the number of PRPs is lower (or single) making it easier to reach agreement on an approach including advance/interim restoration or use of banking credits as part of the settlement.

²¹⁰ LAC 43:XXXI:§111.

In some instances, banks are not a good option at a watershed scale because the injury is to migratory species/marine mammals. However, they can be part of a larger NRDA restoration effort that includes numerous restoration sites.

Tribal Trustees

Indian tribal trustees can confront additional issues in the context of considering when and whether to accept NRDA restoration banking or use of the watershed approach borrowed from §404 compensatory mitigation.

Respondents note that many tribes do not have repeat experiences with NRDA processes and so may need to address a different learning curve than state and federal trustees with multiple cases and the expectation of repeat oil spills and other events.

Respondents noted that there are often very distinct and differing expectations of tribe members and tribal trustees related to the damages and restoration plans— related to impacts on treaty rights, reservation lands. And a restoration plan (such as restoration of salmon fisheries vs. addressing impact to reservation lands) may present distinct choices. Also, where there is more than one tribe involved in the NRDA process, their interests may not be consistent. In some cases, where agreement is reached, the trustees could agree to allocate funds to restoration of resources within the watershed that would benefit all tribes and other trustees. But in some instances the trusteeship over the resource varies (such as access to particular waters for fishing, hunting, traditional uses), contrasting with plenary jurisdiction over a damaged resource.

Differences in the effects of injury can make these determinations and decisions difficult. In one instance a tribe had historic use of reed grasses, but restoration on site could not meet the need because of ongoing contamination affecting the reeds; the settlement promoted among other actions, apprenticeship in traditional basket weaving using reed grasses. In some cases, fishery rights and tribal traditions are different so one project cannot address all losses.

It is important to establish expectations in a trustee MOA. In one example, one PRP proposed on-site restoration plus credits from a nearby wetland bank, but the trustees rejected the approach for lack of equivalency. The lack of a trustee MOA left no way to resolve disagreement.

Context is critical. Respondents working with tribal trustees emphasize the importance of “listening first” and understanding the underlying stories in order to understand the loss. This makes it possible to determine what justice and restoration consist of; understanding these values may lead to a greater emphasis on direct restoration rather than simply assigning dollar values to loss and/or DSAYs. One respondent noted that contingent valuation is also very problematic as a technique for tribal cultural resources.

The restoration action should reflect traditional concepts important to tribal trustees, often relating the people to the land and water. This may be a reciprocal relationship of respect, not merely a utilitarian concept of lost value. Also, use of offsite banking is very problematic for tribal trustees who have a specific land area and deep natural/cultural connections to the resource. This means that fungibility

using banking approaches may be less appealing to tribal trustees than to state trustees aiming at broader watershed (or habitat) objectives. One consultant respondent emphasized that tribes want nearby restoration for additional reasons. They do not like to see the value of reservation/treaty lands whittled away by injuries, so they emphasize restoration of those lands. Tribes are sometimes, as a result, less interested in compensatory restoration for interim losses, but much more concerned with restoration of the damaged resource itself in place. Another respondent said that banking should never be more than part of the restoration plan in a tribal trustee situation, as restoration needs to be closely geographically focused on the area of injury to meet the needs of the tribes. On the other hand, tribes have accepted off-reservation projects on lands that are historically/culturally important to their people. But it is not always easy to identify these ahead of time, as might be helpful in establishing banking opportunities.

IDENTIFYING POTENTIAL AREAS FOR NRDA BANKS

Based on decades of experience with 404 mitigation banks, ILFs, and conservation banks, it is likely that such banks will be developed (and financed) in places where there is likely to be a recurring demand for credits. In the case of banking for permitted impacts, these have largely occurred in areas of recurring development seeking CWA §404 permits and/or ESA §10 HCPs. In the case of natural resource damage claims, however, the most likely areas for activity are those areas where one would expect recurring small spills (which could be addressed efficiently by restoration banking mechanisms) or where larger future spills or releases may occur that could in part be addressed by restoration banking.

It is important to consider where future spills may occur to make informed decisions on potential opportunities for integration of these tools with NRDA. Geographic regions with recurring NRDA cases are especially valuable considerations for applying the guidance in this report. Landscapes repeatedly affected by spills would benefit from preemptive restoration measures to mitigate the impacts of future incidences. Moreover, landscapes with recurring NRD activity would be better suited to generate enough demand to support a restoration banking market.

To determine areas with recurring cases, we consulted the data from **public case information** in the Department of Interior's (DOI) NRDAR Database and NOAA's DARRP database.²¹¹ To maintain focus on NRD cases involving wetlands and other aquatic resource damages, we filtered for cases that included aquatic resources.

DEPARTMENT OF INTERIOR NRDAR DATABASE: First, cases were filtered based on "Affected DOI Trust Resource" and those connected with aquatic resources were included ("Anadromous Fish", "Interjurisdictional Fish" and "Marine Mammals"). Recognizing that the Affected DOI Trust Resource categories excluded in the initial step may also include aquatic resource damages, as in freshwater environments among others, cases including the following keywords were searched, reviewed, and included if aquatic resources were damaged: "wetland", "water", "ocean", "sea".

NOAA DARRP DATABASE: The cases from the DOI site were then cross-compared with all of the available case information on the NOAA DARRP. Cases with aquatic resource damages were added.

The resulting NRDA cases were mapped to aid in determining geographic site location of past spills and to facilitate comparisons with available banks and ILFs from the Corps of Engineers RIBITs database.

These states and geographic focus areas may offer the greatest potential for future use of the approaches under evaluation.

²¹¹ (Collected July and August 2017) U.S. DOI NRDAR Map and Case Document Library https://www.cerc.usgs.gov/orda_docs/ NOAA Damage Assessment, Remediation, and Restoration Program (DARRP) <https://www.darrp.noaa.gov/explore-projects>

STATES WITH MOST NRDA CASES

STATE	CASES	CASE TYPE			CASE STATUS**				
		CHEMICAL	OIL	MIN-ING	ASSESS-MENT	ASSESSMENT/RESTORATION	RESTORATION	CLOSED	DATA NOT AVAILABLE
CALIFORNIA	23	6	15	2	1		14	6	2
VIRGINIA	21	17	3	1	2		5	1	13
TEXAS	19	11	8		4		5	6	4
NEW YORK	18	16	2		6	1	8	2	1
WASHINGTON	18	11	7		6		5	5	2
NEW JERSEY	13	9	4		5		5		3
LOUISIANA	10	3	7			1	6		3
MASSACHUSETTS	10	8	2				9		1

GEOGRAPHIC AREAS WITH MOST NRDA CASES

LOCATION	CASES	CASE TYPE		CASE STATUS**				
		CHEMICAL	OIL	ASSESS-MENT	ASSESSMENT/RESTORATION	RESTORATION	CLOSED	DATA NOT AVAILABLE
NEW YORK/NEW JERSEY BORDER	11	7	4	6		2		3
NEWPORT NEWS/NORFOLK, VA	10	10						10
SAN FRANCISCO BAY AREA	9	2	7			5	3	1
PUGET SOUND/SEATTLE, WA	9	7	2	3		3	2	1
DELAWARE RIVER PA/NJ/DE	8	5	3	1	1	5		1

Cases include only *publicly available* cases listed on the DOI NRDAR Case Map and NOAA DARRP Case Map (retrieved September 2017). DOI NRDAR Cases include only cases with affected aquatic resources (defined as cases with affected DOI trustee resources: anadromous fish, interjurisdictional fish, marine mammals, and cases with damage to wetland, water, ocean, and sea. They include both large and small areas.

Post-Assessment Activity, including Restoration-Planning, classified as “Restoration.” Complete Pre-Assessments and display of incomplete Assessment processes, classified as “Assessment.”

These states and regions are those that are most likely to experience demand, including recurring demand, for future NRDA restoration that might include a watershed-based restoration component that may be satisfied in part by use of mechanisms such as the compensatory mitigation mechanisms used for Clean Water Act purposes, and conservation banks.

The state list is important not merely because of recurring demand, and trustee experience, but also because approval of 404 mitigation banks and ILFs by the Corps includes consultation with IRTs with state members. Thus, these states have experience in siting, credit definition, and the watershed approach.

Similarly, certain regions have been subject to numerous NRDA claims resulting from releases and spills. These areas (generally harbors and industrial areas associated with estuaries and bays) present a key subject for evaluation to determine the extent to which CWA mechanisms may be available or can be developed to address future releases and spills.

The listed areas on the table above have eight (8) or more cases.²¹² Other areas with high potential demand we identified using this methodology include Charleston SC (6), Galveston Bay (5), Louisiana Gulf Coast (5), and Portland Harbor (3). The latter two have substantial NRDA processes in place and are experimenting with forms of NRDA banking. The map identifies these areas, which offer potential for NRDA restoration banking.



²¹² This methodological approach (number of cases) does not elevate some possibly relevant areas such as single large superfund sites, such as mining sites or lead mining districts covering many square miles. It also does not identify state NRD sites addressed solely under state laws.

Using the focus areas with the largest number of cases, we then examined the NRDA cases²¹³ and searched for the existence of existing *approved* 404 banking and ILF project sites in each region²¹⁴ to determine the extent to which there might be both a demand and a supply for credits in place in these areas of interest. We also show the inventory of currently-available credits in these areas as reported in the Corps' RIBITS database.

Although RIBITs may not be entirely up-to-date with respect to ILF project sites and current credit inventories at the sites, it nevertheless indicates the existence of an active producer market. Also note that ILFs can, by adding new project sites under their approved program instruments, be approved to generate new and additional credits in accordance with their existing compensation planning frameworks.

Although credits are measured in different ways, this comparison gives some idea of the level of compensatory mitigation that might be available to address NRDA cases in specific regions, as well as the robustness of the markets (e.g., generally there are multiple banks in these higher-frequency spill and release regions).

²¹³ Cases are publicly available cases listed on the DOI NRDAR Case Map and NOAA DARRP Case Map (retrieved September 2017). DOI NRDAR Cases include only cases with affected aquatic resources (defined as cases with affected DOI trustee resources: anadromous fish, interjurisdictional fish, marine mammals, and cases with damage to wetland, water, ocean, and sea.

²¹⁴ Only includes banks/ILF sites with service areas overlapping with identified NRDA sites. Data from RIBITS (retrieved Nov. 15, 2017).

New York/New Jersey Harbor

NRDA CASES

CASE	TYPE	STATUS ²¹⁵
Berry's Creek Watershed	Chemical	Assessment
Diamond Alkali NPL Site	Chemical	Assessment
Syncon Resin	Chemical	Restoration
Newtown Creek	Chemical	Assessment
Gowanus Canal	Chemical	Assessment
Exxon Bayway Refinery Pipeline Heating Oil Spill	Oil	Restoration
Cibro-Savannah	Oil	Data Unavailable
BT Nautilus	Oil	Data Unavailable
Conoco Phillips Bayway	Oil	Data Unavailable
Piles Creek	Chemical	Assessment
Raritan Bay Slag	Chemical	Assessment

BANKING/ILF SITES

There are 3 approved banks with service areas available in this area. There are no existing ILF program sites with service for this area

AVAILABLE BANKING/ILF CREDITS

WETLAND = 52.048 AVAILABLE CREDITS

- Wetlands = 52.048

²¹⁵ Post-assessment activity, including restoration planning, classified as "Restoration." Complete pre-assessments with no subsequent information, or other indications of incomplete assessment processes classified as "Assessment".

Newport News/Norfolk

NRDA CASES

CASE	TYPE	STATUS
Naval Supply Center/Naval Weapons Station Yorktown Cheatham Annex	Chemical	Data Unavailable
Naval Weapons Station Yorktown	Chemical	Data Unavailable
Fort Eustis	Chemical	Data Unavailable
Langley AFB	Chemical	Data Unavailable
Naval Station Norfolk	Chemical	Data Unavailable
Nansemond Ordnance Depot	Chemical	Data Unavailable
Joint Expeditionary Base Little Creek	Chemical	Data Unavailable
Norfolk Naval Shipyard	Chemical	Data Unavailable
Atlantic Wood	Chemical	Data Unavailable
St. Juliens Creek	Chemical	Data Unavailable

BANKING/ILF SITES

There are 15 approved banks and 2 ILF programs (with 17 project sites with service areas in this area).

AVAILABLE BANKING/ILF CREDITS

WETLAND = 9139.207 AVAILABLE CREDITS
<ul style="list-style-type: none"> • Tidal Wetlands = 8605.657 credits • Wetlands = 518.7398 credits • Wetland Preservation = 11.09 credits • Uplands = 3.72 credits
STREAM = 33376.51 AVAILABLE CREDITS
<ul style="list-style-type: none"> • Riverine = 33376.51 credits

San Francisco Bay

NRDA CASES

CASE	TYPE	STATUS
Kinder Morgan Pipeline Diesel Spill	Oil	Restoration
Shell Oil Co. Refinery	Oil	Restoration
Chevron Refinery-Castro Cove	Oil	Restoration
Richmond Terminal 4	Chemical	Unavailable Data
United Heckathorn NPL Site	Chemical	Closed
M/V Cosco Busan	Oil	Restoration
M/V Cape Mohican/San Francisco Drydock Bunker Fuel Oil Spill	Oil	Closed
T/V Command Bunker Fuel Oil Spill	Oil	Closed
SS Jacob Luckenbach Oil Spill	Oil	Restoration

BANKING/ILF SITES

There are 19 approved banks with service areas available for this area.²¹⁶ There are no existing ILF program sites with service for this area. There are conservation banks in this area.

AVAILABLE BANKING/ILF CREDITS

SPECIES/HABITAT = 424.679 AVAILABLE CREDITS
<ul style="list-style-type: none"> • California Tiger Salamander (CTS) = 298.21 credits <ul style="list-style-type: none"> ○ CTS Central Upland = 243.32 credits ○ Sonoma CTS = 54.89 credits • California Red-legged Frog (CRF) = 56.369 credits • Vernal Pool Fairy Shrimp (VPFS) preservation = 49.1 credits • Sebastopol Meadowfoam – Limnanthes vinculans (LIVI – Preservation) = 16.9 credits • Sonoma Sunshine (Blennosperma bakeri) (BLBA) Preservation = 4.1 credits
WETLAND = 40.28 AVAILABLE CREDITS
<ul style="list-style-type: none"> • Wetlands = 31.5 credits • Seasonal Wetland = 4.73 credits • Vernal Pool Establishment = 3.35 credits • Riparian Seasonal Wetland = 0.7 credits
STREAM = 4.55 AVAILABLE CREDITS
<ul style="list-style-type: none"> • Tidal Other Waters of the U.S (4.55)
GROUP CREDITS
Group: Species/Habitat
<ul style="list-style-type: none"> • Frog/Butterfly = 62.59 credits

²¹⁶ Two approved banks have zero available credits, but are not categorized as closed/sold out/suspended

<ul style="list-style-type: none"> • California Red-legged Frog (CRF)/Alameda Whipsnake (AWS) = 55.15 credits • California Tiger Salamander (CTS)/Swainson's hawk(SWHA)/Burrowing Owl (BUOW) = 53.83 credits • Vernal Pool Fairy Shrimp (VPFS) + Vernal Pool Tadpole Shrimp (VPTS) = 42.364 credits • Vernal Pool Fairy Shrimp (VPFS) + Vernal Pool Tadpole Shrimp (VPTS) + CTS Breeding = 34.4 credits • Vernal Pool Fairy Shrimp (VPFS) + Vernal Pool Tadpole Shrimp (VPTS) + Contra Costa Goldfields (LACO) = 17.1 credits • Sebastopol Meadowfoam (LIVI) + California Tiger Salamander (CTS) = 6.57 credits • Conservancy Fairy Shrimp (COFS)/Vernal Pool Tadpole Shrimp (VPTS)/California Tiger Salamander (CTS) = 2.86 • California Tiger Salamander (CTS) +- Sonoma Sunshine (BLBA) = 2.56 credits • California Tiger Salamander (CTS) + Burke's goldfields (LABU) + Sonoma Sunshine (BLBA) = 1.09 credits • California Tiger Salamander (CTS) + Sonoma Sunshine (BLBA) + Sebastopol Meadowfoam (LIVI) = 0.4 credits • Conservancy Fairy Shrimp (COFS)/Vernal Pool Tadpole Shrimp (VPTS)/San Joaquin Orcutt Grass (SJOG) = 0.15 credits • Conservancy Fairy Shrimp (COFS)/Vernal Pool Tadpole Shrimp (VPTS) = 0.7 credits
Group: Wetland + Species/Habitat
<ul style="list-style-type: none"> • Vernal Pool Establishment (404) +- California Tiger Salamander (CTS) +- Sonoma Sunshine (BLBA) + Sebastopol Meadowfoam (LIVI) = 21.01 credits
Group: Stream
<ul style="list-style-type: none"> • Stream = 91.4 credits

Puget Sound/Seattle Area

NRDA CASES

CASE	TYPE	STATUS
Tulalip Landfill NPL Site	Chemical	Assessment
Port Gardner	Chemical	Assessment
Barge Foss 248-P2 Bunker Fuel Oil	Oil	Closed
Wyckoff/Eagle Harbor NPL Site	Chemical	Restoration
Elliot Bay/Duwamish River Restoration	Chemical	Closed
Lower Duwamish River	Chemical	Restoration
Quendall Terminals	Chemical	Data Unavailable
T/V Polar Texas	Oil	Assessment
Commencement Bay Nearshore/Tideflats NPL Site	Chemical	Restoration

BANKING/ILF SITES

There are 6 approved banks with service available in this area. There are no existing ILF program sites with service for this area.

AVAILABLE BANKING/ILF CREDITS

SPECIES/HABITAT = 300 AVAILABLE CREDITS
<ul style="list-style-type: none">Chinook Salmon = 300 credits
WETLAND = 95.0232 AVAILABLE CREDITS
<ul style="list-style-type: none">Wetlands = 95.0232

Delaware River/Philadelphia Area

NRDA CASES

CASE	TYPE	STATUS
Metal Bank	Chemical	Assessment/ Restoration
Publicker Industries Inc. NPL Site	Chemical	Restoration
M/T Athos I Crude Oil Spill	Oil	Restoration
Presidente Riviera	Oil	Restoration
International Petroleum Corp.	Oil	Data Unavailable
DuPont Hay Road/DuPont Edgemoor	Chemical	Assessment
E.I. du Pont de Nemours & Co. (Newport Pigment Plant Landfill) NPL Site	Chemical	Restoration
Army Creek Landfill NPL Site	Chemical	Restoration

BANKING/ILF SITES

There is 1 approved bank with service available in this area. There are no existing ILF program sites with service for this area.

AVAILABLE BANKING/ILF CREDITS

WETLAND = 7.6 AVAILABLE CREDITS

- Wetlands = 7.6 credits

TRIBAL TRUSTEE CLAIMS AND OPPORTUNITIES

We separately determined locations where tribal trustees are frequent enough players to warrant further examination of use of these mechanisms. Using the same approach in identifying appropriate NRDA cases, we first determined states in which tribal trustees have participated on trustee councils.

After that, we identified instances where tribal trustees themselves have been involved in multiple cases affecting natural resources important to the tribes. This smaller universe also suggests opportunities for focus on development or consideration of these mechanisms as appropriate. Especially in Washington, the listed tribes (and others, such as Yakama) may have reason to consider use of innovative or different approaches to address future releases and spills.

NRDA Cases with Tribal Trustees—by State

STATE	CASES WITH TRIBAL TRUSTEES	CASE TYPE			CASE STATUS		
		CHEMICAL	OIL	MINING	ASSESSMENT	RESTORATION	CLOSED
WASHINGTON	12	5	7		4	5	3
NEW YORK	4	4			1	3	
MICHIGAN	3	2	1		1	2	
MINNESOTA	3	2	1		2	1	
OREGON	3	1	2			2	1
WISCONSIN	3	3			1	1	1
ARIZONA	1			1		2	
IDAHO	1			1		1	
MASSACHUSETTS	1		1			1	
MONTANA	1	1				1	
NEVADA	1			1		1	
NEW MEXICO	1	1			1		
SOUTH DAKOTA	1			1		1	

Certain tribal trustees are also engaged in wetlands restoration, monitoring, conservation, and other activities. Tribes that have this expertise may be positioned to address NRDA restoration needs with ongoing wetland/watershed activities.

As discussed above, the US EPA provides support for wetland program plans, prepared by states and tribes to improve and advance their wetland conservation and protection activities.

Several tribal trustees have experience with wetland program plans. The following table identifies those tribes that have served as NRD trustees and that have prepared wetland program plans, and which core elements the wetland program plans include.

NRDA Tribal Trustees representing Tribes that also have Wetland Program Plans

TRIBAL TRUSTEE	WETLAND PROGRAM PLAN
<p>Nez Perce Tribe</p> <p><i>Case Involvement:</i> Hanford Nuclear Reservation NPL Site – WA</p> <ul style="list-style-type: none"> • Case Details 	<p>Wetland Program Plan</p> <p><i>Core Elements:</i></p> <ul style="list-style-type: none"> • Monitoring & Assessment • Regulation • Voluntary Restoration & Protection • Water Quality Standards for Wetlands
<p>Confederation Salish and Kootenai Tribes</p> <p><i>Case Involvement:</i> Milltown Reservoir/Clark Fork River NPL Site – MT</p> <ul style="list-style-type: none"> • Case Details 	<p>Wetland Program Plan</p> <p><i>Core Elements:</i></p> <ul style="list-style-type: none"> • Monitoring & Assessment • Regulation • Voluntary Restoration & Protection • Water Quality Standards for Wetlands
<p>Saint Regis Mohawk Indian Tribe</p> <p><i>Case Involvement:</i> St. Lawrence Environmental Case – NY</p> <ul style="list-style-type: none"> • Case Details 	<p>Wetland Program Plan</p> <p><i>Core Elements:</i></p> <ul style="list-style-type: none"> • Monitoring & Assessment • Regulation • Voluntary Restoration & Protection • Water Quality Standards for Wetlands
<p>Confederated Tribes of Warm Springs</p> <p><i>Case Involvement:</i> Beaver Creek Oil Spill – OR</p> <ul style="list-style-type: none"> • Case Details 	<p>Wetland Program Plan</p> <p><i>Core Elements:</i></p> <ul style="list-style-type: none"> • Monitoring & Assessment • Regulation • Voluntary Restoration & Protection
<p>Confederated Tribes and Bands of the Yakama Nation</p> <p><i>Case Involvement:</i> Hanford Nuclear Reservation NPL Site – OR</p> <ul style="list-style-type: none"> • Case Details 	<p>Wetland Program Plan</p> <p><i>Core Elements:</i></p> <ul style="list-style-type: none"> • Monitoring & Assessment • Regulation • Voluntary Restoration & Protection • Water Quality Standards for Wetlands
<p>Tulalip Tribe</p> <p><i>Case Involvement:</i> Port Gardner - WA</p> <ul style="list-style-type: none"> • Case Details <p>Tulalip Landfill NPL Site - WA</p> <ul style="list-style-type: none"> • Case Details 	<p>Wetland Program Plan</p> <p><i>Core Elements:</i></p> <ul style="list-style-type: none"> • Monitoring & Assessment • Regulation • Voluntary Restoration & Protection • Water Quality Standards for Wetlands

Another set of potential opportunities are tribes that have experience with multiple NRDA cases. As repeat trustees, they may have greater reason to support the development of banking/ILF and watershed approach solutions to damages affecting aquatic resources.

Tribal Trustees with Multiple NRDA Cases

TRIBAL TRUSTEES	TOTAL CASES	CASES (BY STATE)	CASE TYPE		CASE STATUS		
			CHEMICAL	OIL	ASSESSMENT	RESTORATION	CLOSED
Muckleshoot Indian Tribe	4	WASHINGTON	2	2	1	3	
Chippewa Tribe, Minnesota (6 components-reservations)	4	3 MINNESOTA	2	1	2	1	
		1 WISCONSIN	1				1
Puyallup Tribe of the Puyallup Reservation	3	WASHINGTON	1	2	1	2	
Suquamish Indian Tribe of the Port Madison Reservation	4	WASHINGTON	2	2	1	2	1

CONCLUSIONS

States and tribes play key roles in compensatory mitigation for aquatic resources and conservation of species and habitats, both in administering their own programs and coordinating with federal permitting agencies. They also wield significant influence as NRDA trustees, as members of trustee councils determining restoration for injured natural resources.

While NRDA restoration and 404 compensatory mitigation or habitat compensatory mitigation mechanisms function similarly to offset impacts to protected resources, the differences between the applicable processes are meaningful.²¹⁷ The NRDA process seeks to achieve full restoration or replacement of resources and services from unpermitted injuries caused by the release of hazardous substances and oil. Trustees typically pursue detailed determinations of baseline conditions and assessment of restoration alternatives (including both primary restoration and compensation for interim losses in services and resources) over a period of years. NRDA also often involves conducting new and specific scientific studies to support these determinations – studies chargeable to PRPs. Timing issues are generally dealt with through accounting mechanisms that incorporate temporal considerations into the measure of restoration (such as discounted service-acre years).

In contrast, the 404 and ESA compensatory mitigation processes deal with identifying, and in many cases supplying, actions to offset the impacts of permitted activities before the impacts occur. In the case of 404 banks and conservation banks, the credits are generated in advance. There is substantial relevant ecological information in hand. And In areas where there are already authorized 404 mitigation banks, ILFs, or conservation banks, there will also have been watershed information or regional habitat data supporting the approval of these entities and determining what will count as credits for future use. Compensatory mitigation credits are typically measured in spatial or linear units or species credit metrics (although these are adjusted with compensation ratios as needed when sold to mitigate particular actions).

Despite the differing frameworks, there are places where 404 compensatory mitigation mechanisms and conservation bank mechanisms offer advantages for the resolution of NRDA claims.

State and tribal trustees can affirmatively identify areas and instances in which 404 and conservation banking approaches can be used to fulfill or complement NRDA processes. They can cultivate the development of these mechanisms in appropriate places—by identifying these areas early with federal trustee agencies, and by adopting laws and policies expressed in state/tribal laws and regulations that define terms and conditions for accepting banking-type actions as NRD alternatives.

Section 404 banking, ILF, and conservation banking approaches may work well in environments that experience frequent, recurrent spills; and especially well for addressing small spills where full-scale

²¹⁷ The 2016 DOI NRDAR Guidance identified the difference in goals between these programs (satisfying NRD liability vs. compensating for authorized impacts) as a reason that the Presidential Memorandum did not extend a “preference” to advance forms of compensation in NRDA cases.

assessment is not always justified, and where individualized restoration projects cannot be funded effectively based on likely recoveries.

In regional areas where there are likely to be multiple NRD claims, restoration banks should be recognized and pre-designated (by trustee federal agencies, states, tribes) as a potential means of meeting liabilities. This will make it easier to integrate such activities as part of restoration plans.

It also will make it possible for compensatory mitigation developers (and their investors) to include planning for generation of NRDA credits as part of their investments in banks that may be developed chiefly for other purposes, such as 404 or conservation banking.

State legislation/regulations can be very helpful in defining expectations and obligations. The Louisiana regulations build substantially on existing experiences with NRDA restoration elsewhere, and build on experiences with the 404 Compensatory Mitigation Rule to guarantee review of siting and operations, oversight, and fulfillment of obligations. The state rules also proved a suitable and defined link to *larger regional restoration plan goals and projects*, making the resulting mechanisms more likely to produce valuable landscape-scale ecological results.

Most NRDA cases, and especially larger cases, will continue to require individualized assessments and detailed determination of restoration plans tailored to the array of resources that have been injured.

It should not be expected that 404 mitigation banking, ILF, or conservation banking mechanisms will be used in most NRDA settings.

In many NRDA settings, these compensatory mitigation mechanisms may be less appealing to trustees in comparison with tailor-made primary and compensatory restoration based on detailed, long-term individualized assessments funded by PRPs. For many large and complex areas, it is very likely that trustees will want to engage in individualized assessment to determine the baseline and evaluate restoration alternatives. Because of this complexity, there may be no hurry to place compensatory restoration in place until after full determination of NRD liability and specifically after primary restoration has been determined and may even be underway.

CWA 404 mitigation banks and conservation banks rely to a significant degree on their ability to project demand for credits. Thus, where demand for credits may be at a much later time and may even not be required (because of primary restoration activities, PRP-initiated activities on their own lands, and other projects), the prospect of marketing restoration credits to meet NRD liability may not be an attractive investment opportunity for private capital.²¹⁸

²¹⁸ ILFs may have more flexibility in that siting and project construction can occur later (without as much commitment of capital). ILF operators are governments or not-for-profit entities that do have financial and risk concerns, but do not need to demonstrate a substantial ROI in comparison with alternative potential investments at each point in time, in contrast with for-profit mitigation banks. It may also be possible to construct relationships under which private capital (including PRP funds) could support some of the ILF upfront expenditures in return for a discount on resulting sale of credits (or payback from credit sales). Trustees could, presumably, also allow

However, in a few places where there is a multi-year NRDA process there may be a place for use of these mechanisms. For example, it is more likely at sites that contemplate opportunities for advance restoration—in the NRDA sense of some restoration activities occurring before full determination of the assessment amount in recognition of a large set of liabilities, and the existence of PRPs willing to enter into early agreements without resolving the entire liability issue. Such mechanisms may also be usable in places where primary restoration is determined to be mostly infeasible as a means of restoring many of the resources (such as widespread contamination of soils in mining districts impairing recovery of biota, or lack of suitable restoration sites in an urban or industrial harbor setting without many available parcels). In these instances (as in Portland Harbor or the Lower Duwamish site) it may be possible to support an ILF or third-party provider (including a private developer) creating suitable projects with sufficient trustee approval. These conditions would require early affirmative support by the trustees, and could overcome some of the risk-averseness of potential providers to make up-front investments. In these instances, state and tribal support²¹⁹ (perhaps based on experience with 404 projects or conservation banking) may be important.

States and tribes can encourage the use of existing regional plans and compensatory mitigation mechanisms by bringing these forward early in the process.

Both the DOI and NOAA NRDA regulations provide for the integration of existing regional plans and regional restoration projects into the NRDA alternatives analysis. This underlying authority can be cited as a basis for federal trustees to consider ESA and 404 compensatory mitigation activities, as well as state and tribal plans, in the development of the trustees' actions for each site. This will be especially valuable in Pre-Incident Planning, as well as in the Pre-Assessment.

Particularly in regions where the watershed approach has been used by the Corps in consultation with an IRT to approve the siting of 404 *mitigation banks* and define their service areas, and by the Corps and IRT to approve the compensation planning framework for *ILF programs*, the regional utility of the watershed approach for NRDA can be high. Among other advantages, the involvement of multiple resource agencies through the IRT approval of the bank or ILF produces greater potential utility for its use in a NRDA process as a regional restoration plan.²²⁰ The multiple perspectives of these agencies improve the likelihood that the mechanism, and its credits, will meaningfully address watershed and habitat needs.

Note, however, that the trustees' NRDA process is likely to benefit only minimally from incorporating the 404 Compensatory Mitigation Rule's "watershed approach" if this is understood to mean only the use of pre-existing watershed plans created for other purposes and *referred to* by the Corps when approving permittee-responsible mitigation under 404. Indeed, the typical NRDA process already

advance sale of a limited number of credits in circumstances where they are confident of the outcome, and retain the ability to disallow or adjust the credits downward.

²¹⁹ E.g., Grande Ronde Tribe's support for Alder Creek site in Portland Harbor (on tribe's "ceded lands").

²²⁰ The same is true for habitat data used by the FWS or NOAA (and state wildlife agencies) in connection with their prior approvals of HCPs and conservation banks.

typically engages the trustees in identifying existing plans and aquatic resource condition data, so they can be expected to consult many of the same plans the Corps can consult.

Credit definition is extremely important to ensure that NRDA requirements are satisfied.

If restoration banking, or use of 404 compensatory mitigation mechanisms or conservation banking, is to be used for NRDA purposes, a mechanism for credit definition and calculation should be put into place—addressing types of credits, ecological performance, monitoring, and accountability. Methodologies can be established ahead of spills and releases by state law or policy, by development of conditions for future trustee MOAs (and reference to prior successful trustee models), or by other means.

Agreements among the NRDA trustees can be very important to identify the possibility of credit utilization from projected (or existing) banks, to facilitate the development of restoration banks, and to determine likely credit definitions. This is necessary in order to ensure that there is a reasonable basis for private or nonprofit investment in these restoration activities in advance of any assured return. State-led approaches (such as in Louisiana) can also define these expectations for state NRD activities.²²¹ Such approaches can also define circumstances under which “multiple-use” banks account for the use of credits by other programs.

Prohibitions on double counting, and limitations on pre-sales (advance credits), as well as recognition that credit-generating and accounting practices may need to be modified, can support and facilitate use of these approaches.

NOAA’s 2016 policy against recognizing and accepting credits that are not generated under trustee supervision²²² provides no evident advantages. It should be possible to recognize credits generated before the signing of an MOA between trustees and a provider if they meet the ecological restoration/service standards set by the trustees. NRDA trustees should not, in general, prohibit the use of previously created credits to meet NRD liability where these credits were created in anticipation of meeting liabilities for compensatory mitigation under CWA or ESA, or even for NRD claims. The development of advance restoration is not itself part of the baseline because the services are, in each such instance, generated in anticipation of future loss—at least where some governmental entity has previously approved the instrument under which the prior work was done.²²³

²²¹ The Louisiana regulations have detailed provisions defining “NRD Restoration Credits.” These borrow from the concepts and mechanisms used in the 404 Compensatory Mitigation Rule, such as credit release schedules, approvals of releases, monitoring.

²²² “Trustees will only accept NRDA restoration bank credits produced under trustee oversight....[I]f a restoration bank is developed in year 1 and the trustees enter into a restoration banking agreement with the project developer in year 5, the trustees will agree to accept only those credits produce by the project in years 5 and following. Under the same scenario, if a spill to which the restoration project credit may be applicable occurs in year 8, the trustees will agree to accept only those credits produced in years 8 and following.” NOAA Guidance at 5, no.7, and Appendix E.

²²³ This caveat (prior governmental approval) prevents the possibility of purely voluntary conservation or public restoration being diverted opportunistically to meet NRD liability. Indeed, governmental approvers of banks and ILFs typically include (or consult, in the case of IRTs) state and tribal agencies that also serve as NRDA trustees.

It is true, however, that IRTs and the Corps, and the FWS and state wildlife agencies, will want to exercise some authority over compensation credits generated under their approved instruments (which in some cases will have been approved in contemplation of particular uses or demands, or reflect relatively scarce siting opportunities). These issues can be addressed most directly in identifying focus areas (noted above) where such uses are likely to be desired (e.g. common oil spill areas), and/or early in the NRDA trustee process for larger sites.

Public comment on use of credits for NRDA remains important, and can be integrated with existing processes.

Approaches for designation of restoration banks and the use of credits generated by other existing entities (404 mitigation banks, ILFs, conservation banks) should be subject to public comment, and integrated with NEPA and NRDA procedures to the greatest extent possible. Such uses can be addressed, among other ways, by programmatic environmental assessments in areas where future uses are anticipated (and then subsequent NRDA processes tied to the prior efforts). Alternatively, the approval by the Corps, FWS, or states of advance compensatory mitigation mechanisms frequently includes a public comment process that can be structured to include anticipated uses for NRDA or other purposes.

The value of public input in a NRDA scenario is very high as the public will have suffered a loss to its resources. Public participation in the establishment of restoration banks/release of credits is important to the process.

Provisions for restoration banks used in NRDA restoration should include all necessary assurances for siting, monitoring, maintenance, long term management, and financial assurances. These can be based on the successful models under the Compensatory Mitigation Rule, and the Conservation Banking Interim Guidance, each of which meets NRDA needs.

Tribal trustees may need to examine opportunities to generate restoration credits on their own lands or treaty rights lands via participation in restoration banking.

Given constraints on uses of tribal lands and access issues for treaty lands, tribes' ability to participate in producing these credits for sale (or providing land and water areas for such purposes) may be limited. Particularly in focus areas subject to future oil spills and future NRD claims, it would be useful for tribes to obtain legal and technical assistance in connection with identifying these opportunities and constraints, which vary substantially.

Tribal trustees may consider uses of restoration banks/ILFs to meet portions of NRD liability where the resource cannot be wholly recovered on the injury site but where the restoration banking activity may directly benefit trust resources and treaty rights.

Wetland programs provide opportunities to plan for integration with the NRDA process.

State and tribal wetlands programs can inform the development of valuation approaches and credit definitions for use in NRDA restoration activities including restoration banking. In many instances, the

NRDA trustees are in the same agency (or are the same agency) that is responsible for aquatic resource protection, regulation, and/or conservation.²²⁴

EPA should consider integrating NRDA issues in its support for wetlands restoration activities. In its support for “core” elements of wetlands program management plans, along with voluntary restoration and other restoration activities, it could provide guidance to encourage the identification of ways to integrate NRD restoration with a landscape-level approach to aquatic resource conservation.

²²⁴ See Appendix B to this report.

ACRONYMS

BRT—Banking Review Team (under Louisiana NRD banking regulations)

CERCLA—Comprehensive Environmental Response, Compensation and Liability Act

CEQ—Council on Environmental Quality

CPRA—Coastal Protection and Restoration Authority

CWA—Clean Water Act

DARRP—Damage Assessment, Remediation and Restoration Program (NOAA)

DOI—Department of the Interior

DRP—Draft Restoration Plan (NOAA)

DSAY—Discounted ecological service-acre year

EA—Environmental Assessment (under NEPA)

EIS—Environmental Impact Statement (under NEPA)

EPA—Environmental Protection Agency

ESA—Endangered Species Act

FRP—Final Restoration Plan

FWS—U.S. Fish and Wildlife Service

HCP—Habitat Conservation Plan (under ESA)

HEA—Habitat Equivalency Analysis

IRT—Inter-Agency Review Team (under CWA §404)

ILF—In-lieu Fee Program (compensatory mitigation mechanism under CWA § 404)

MOA—Memorandum of Agreement

NEPA—National Environmental Policy Act

NOA—Notice of Availability

NOAA—National Oceanic and Atmospheric Administration

NRD—Natural Resource Damages

NRDA—Natural Resource Damage Assessment

NRDAR—Natural Resource Damage Assessment and Restoration Program (DOI)

OPA—Oil Pollution Act

PED—Preliminary Estimate of Damages

PRP—Potentially Responsible Party

RCDP—Restoration and Compensation Determination Plan

RIBITS-- Regulatory In-lieu fee and Bank Information Tracking System

ROI—Return on Investment

RP—Responsible Party

APPENDIX A—Advisors and Experts Interviewed

Michael Anderson – California Department of Fish and Wildlife

James Bove – U.S. Environmental Protection Agency

Megan Callahan Grant - NOAA Restoration Center

Karolien Debusschere – Louisiana Oil Spill Coordinator’s Office

Tim DiCintio – National Fish and Wildlife Foundation

Peter Dykstra – Plauche and Carr

Steve Glomb – U.S. Department of Interior NRDA Program

Max Greenblum – U.S. Environmental Protection Agency

Raul Gutierrez – Environmental Protection Agency Region 6

David Hanson – HansonRM

BJ Howerton – Bureau of Indian Affairs

Matt Johnson – Confederated Tribes of the Umatilla Indian Reservation

Mark Laska – Great Ecology

Bradley Marten – Marten Law PLLC

Connie Sue Martin – Schwabe Williamson & Wyatt

Nadia Martin – Industrial Economics Incorporated

Julie Mentzer – Wildlands

Karen Pelto – Massachusetts Dept. of Environmental Protection

Trey Phillips – State of Louisiana

Jeannette Schafer – U.S. Environmental Protection Agency

William Trousdale – EcoPlan International

Robert Unsworth – Industrial Economics Incorporated

Jessica Wilkinson – The Nature Conservancy

APPENDIX B–State NRDA Trustee Agencies and State Wetland Regulators

STATE	State-Level NRD Authority ²²⁵	State-Level Wetland Permitting Authority ²²⁶	ASWM Category ²²⁷
ALABAMA	Department of Conservation and Natural Resources State Geologists Survey of Alabama State Lands Division	Department of Environmental Management - Coastal Section	§401 + Coastal Program
ALASKA	Department of Environmental Conservation - Division of Spill Prevention and Response o Prevention, Preparedness and Response Program Department of Natural Resources Department of Fish and Game Department of Law (DOL)	Department of Environmental Conservation	§401 Only
ARIZONA	Department of Environmental Quality	Department of Environmental Quality	§401 Only
ARKANSAS	Natural Resources Damages Advisory Board - Department of Environmental Quality (and other state agencies)	Department of Environmental Quality	§401 Only
CALIFORNIA	Department of Fish and Wildlife’s Office of Spill Prevention and Response Cal. Resources Agency		§401 + Coastal Program

²²⁵ “State-by-State Guide to NRD Programs in All 50 States and Puerto Rico” (July 2017). Brian D. Israel Esq., Arnold & Porter Kaye Scholer LLP.

<https://www.apks.com/~media/files/perspectives/publications/2015/03/statebystate-guide-to-nrd-programs-in-all-50-states/files/publication/fileattachment/nrd-statebystate-guide1.pdf>

²²⁶ ELI Study of State Wetland Programs (2008). <https://www.eli.org/freshwater-ocean/state-wetland-programs>

²²⁷ “Status and Trends Report on State Wetland Programs in the United States” (2015). Association of State Wetland Managers. https://www.aswm.org/pdf/lib/state_summaries/status_and_trends_report_on_state_wetland_programs_in_the_united_states_102015.pdf

STATE	State-Level NRD Authority ²²⁵	State-Level Wetland Permitting Authority ²²⁶	ASWM Category ²²⁷
	California Environmental Protection Agency California Department of Fish and Wildlife Department of Parks and Recreation Wildlife Conservation Board Department of Toxic Substances Control State Water Resources Control Board State Lands Commission University of California	State Water Resource Control Board Coastal Commission	
COLORADO	Attorney General Department of Public Health and Environment Department of Natural Resources	Department of Public Health and Environment	§401 Only
CONNECTICUT	Department of Energy and Environmental Protection	Department of Environmental Protection - Inland Water Resources Division	State Dredge and Fill Permitting Program
DELAWARE	Department of Natural Resources and Environmental Control - Division of Fish and Wildlife - Division of Watershed Stewardship - Division of Waste and Hazardous Substance	Department of Natural Resources and Environmental Control - Division of Water Resources	§401 Only
FLORIDA	Department of Environmental Protection - Office of Emergency Response	Department of Environmental Protection Waste Management Districts	State Dredge and Fill Permitting Program
GEORGIA	Department of Natural Resources	Department of Natural Resources	§401 +

STATE	State-Level NRD Authority ²²⁵	State-Level Wetland Permitting Authority ²²⁶	ASWM Category ²²⁷
		<ul style="list-style-type: none"> - Environmental Protection Division - Coastal Resources Division <ul style="list-style-type: none"> o Marsh/Shore Protection Committee 	Coastal Program
HAWAII	Department of Health Department of Land and Natural Resources (DLNR) Board of Land and Natural Resources	Department of Health <ul style="list-style-type: none"> - Clean Water Branch 	§401 Only
IDAHO	Governor Department of Fish and Game Department of Environmental Quality	Department of Environmental Quality	§401 Only
ILLINOIS	Department of Natural Resources Illinois Environmental Protection Agency Natural Resources Trustee Coordinating Council <ul style="list-style-type: none"> - Comprised of trustees listed above and the Attorney General 	Illinois Environmental Protection Agency	§401 Only
INDIANA	Department of Natural Resources (DNR) Department of Environmental Management U.S. Fish and Wildlife Service	Department of Environmental Management	State Dredge and Fill Permitting Program
IOWA	Department of Natural Resources <ul style="list-style-type: none"> - Fisheries Bureau - Wildlife Bureau - Legal Bureau 	Department of Natural Resources <ul style="list-style-type: none"> - Water Resources Section 	§401 Only
KANSAS	Bureau of Environmental Remediation Department of Health and Environment	Department of Health and Environment	§401 Only
KENTUCKY	Energy and Environment Cabinet		§401 Only

STATE	State-Level NRD Authority ²²⁵	State-Level Wetland Permitting Authority ²²⁶	ASWM Category ²²⁷
	(houses the Department of Environmental Protection)	Department of Environmental Protection – Division of Water - Water Quality Certification Section	
LOUISIANA	Oil Spill Coordinator’s Office and Coastal Protection and Restoration Authority, DEQ, DNR, Dept. of Wildlife and Fisheries (trustees)	Department of Environmental Quality - Coastal Management Division	\$401 + Coastal Program
MAINE	Department of Environmental Protection Department of Inland Fisheries and Wildlife Department of Marine Resources Department of Agriculture, Conservation, and Forestry	Department of Environmental Protection - Land Resource Regulation Division	State Dredge and Fill Permitting Program
MARYLAND	Department of Environment Department of Natural Resources	Department of the Environment - Tidal Wetlands Division	State Dredge and Fill Permitting Program
MASSACHUSETTS	Executive Office of Energy and Environmental Affairs Department of Environmental Protection	Conservation Commissions (every city and town in state has a conservation commission).	State Dredge and Fill Permitting Program
MICHIGAN	Department of Natural Resources Department of Environmental Quality Attorney General	Department of Environmental Quality - Land and Water Management Division	State Dredge and Fill Permitting Program
MINNESOTA	Department of Natural Resources Pollution Control Agency	Pollution Control Agency	State Dredge and Fill Permitting Program
MISSISSIPPI	Department of Environmental Quality	Department of Environmental Quality - Office of Pollution Control o Environmental Permits Division	\$401 + Coastal Program

STATE	State-Level NRD Authority ²²⁵	State-Level Wetland Permitting Authority ²²⁶	ASWM Category ²²⁷
		<ul style="list-style-type: none"> ▪ Water Quality Certification Branch Department of Marine Resources <ul style="list-style-type: none"> - Bureau of Wetland Permitting 	
MISSOURI	Department of Natural Resources	Department of Natural Resources <ul style="list-style-type: none"> - §401 Water Quality Certification Unit 	§401 Only
MONTANA	Department of Justice <ul style="list-style-type: none"> - Natural Resource Damage Program 	Department of Environmental Quality	§401 Only
NEBRASKA	Department of Environmental Quality	Department of Environmental Quality	§401 Only
NEVADA	Department of Conservation and Natural Resources <ul style="list-style-type: none"> - Division of Environmental Protection Department of Wildlife	Department of Conservation and Natural Resources <ul style="list-style-type: none"> - Division of Environmental Protection 	§401 Only
NEW HAMPSHIRE	Department of Environmental Service Department of Resources and Economic Developments	Department of Environmental Services <ul style="list-style-type: none"> - Water Division <ul style="list-style-type: none"> o Wetlands Bureau 	State Dredge and Fill Permitting Program
NEW JERSEY	Department of Environmental Protection <ul style="list-style-type: none"> - Office of Natural Resource Restoration 	Department of Environmental Protection <ul style="list-style-type: none"> - Division of Land Use Regulation 	State Dredge and Fill Permitting Program
NEW MEXICO	Environment Department Office of the Natural Resource Trustee <ul style="list-style-type: none"> - New Mexico Natural Resource Damage Assessment and Restoration Program 	Environmental Department <ul style="list-style-type: none"> - Surface Water Quality Bureau 	§401 Only
NEW YORK	Department of Environmental Conservation (NYDEC) NYDEC Natural Resource Damages Unit	Department of Environmental Conservation (all wetlands except those within Adirondack Park) <ul style="list-style-type: none"> - Division of Fish, Wildlife, and Marine Resources 	State Dredge and Fill Permitting Program

STATE	State-Level NRD Authority ²²⁵	State-Level Wetland Permitting Authority ²²⁶	ASWM Category ²²⁷
		Adirondack Park Agency (all wetlands within Park)	
NORTH CAROLINA	Department of Environmental Quality	Department of Environment and Natural Resources - Division of Water Quality	State Dredge and Fill Permitting Program
NORTH DAKOTA	No NRD program or statute.	Department of Health	§401 Only
OHIO	Environmental Protection Agency - EPA central office - EPA Division of Environmental Response and Revitalization	Environmental Protection Agency - Division of Surface Water	State Dredge and Fill Permitting Program
OKLAHOMA	Governor's Cabinet Department of Wildlife Conservation	Department of Environmental Quality	§401 Only
OREGON	Department of Environmental Quality Department of Fish and Wildlife	Department of Environmental Quality	State Dredge and Fill Permitting Program
PENNSYLVANIA	Game Commission Department of Conservation and Natural Resources Fish and Boat Commission Department of Environmental Protection	Department of Environmental Protection - Division of Waterways, Wetlands, and Stormwater Management	State Dredge and Fill Permitting Program
RHODE ISLAND	Department of Environmental Management	Department of Environmental Management (Freshwater wetlands) Coastal Resources Management Council	State Dredge and Fill Permitting Program
SOUTH CAROLINA	Governor Department of Natural Resources		§401 + Coastal Program

STATE	State-Level NRD Authority ²²⁵	State-Level Wetland Permitting Authority ²²⁶	ASWM Category ²²⁷
	Department of Health and Environmental Control	Department of Health and Environmental Control <ul style="list-style-type: none"> - Office of Ocean and Coastal Resource Management - Office of Environmental Quality Control <ul style="list-style-type: none"> o Bureau of Water - Office of Environmental Quality Control 	
SOUTH DAKOTA	Department of Environment and Natural Resources	Department of Environment and Natural Resources	§401 Only
TENNESSEE	Department of Environment and Conservation	Department of Environment and Conservation <ul style="list-style-type: none"> - Division of Water Pollution Control 	State Dredge and Fill Permitting Program
TEXAS	General Land Office Parks and Wildlife Department Commission on Environmental Quality	General Land Office Commission on Environmental Quality	§401 + Coastal Program
UTAH	Department of Environmental Quality Department of Natural Resources	Department of Environmental Quality	§401 Only
VERMONT	Vermont Agency of Natural Resources	Agency of Natural Resources <ul style="list-style-type: none"> - Department of Environmental Conservation <ul style="list-style-type: none"> o Division of Water Quality 	State Dredge and Fill Permitting Program
VIRGINIA	Virginia Governor's Office	Department of Environmental Quality <ul style="list-style-type: none"> - Office of Wetlands and Water Protection/Compliance 	State Dredge and Fill Permitting Program
WASHINGTON	Department of Ecology <ul style="list-style-type: none"> - Spill Prevention, Preparedness & Response Program (SPPRP) <ul style="list-style-type: none"> o Resource Damage Committee <ul style="list-style-type: none"> ▪ Department of Ecology 	Department of Ecology	State Dredge and Fill Permitting Program

STATE	State-Level NRD Authority ²²⁵	State-Level Wetland Permitting Authority ²²⁶	ASWM Category ²²⁷
	<ul style="list-style-type: none"> ▪ Department of Natural Resources ▪ Department of Fish and Wildlife ▪ State Parks and Recreation Commission ▪ Department of Health ▪ Office of Archaeology and Historic Preservation ▪ Any interested tribes ▪ Toxic Cleanup Program (TCP) ▪ Nuclear Waste Program (NWP) <p>Department of Natural Resources</p> <p>Department of Fish and Wildlife</p>		
WEST VIRGINIA	Department of Environmental Protection - Division of Natural Resources	Department of Environmental Protection - Division of Natural Resources	State Dredge and Fill Permitting Program
WISCONSIN	Department of Natural Resources	Department of Natural Resources - Office of Energy	State Dredge and Fill Permitting Program
WYOMING	No formal NRD program. Uses Wyoming Environmental Quality Act NRD provisions to collect NRD claims.	Department of Environmental quality - Watershed Management Section	§401 Only

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